ROAD and TRACK

35c

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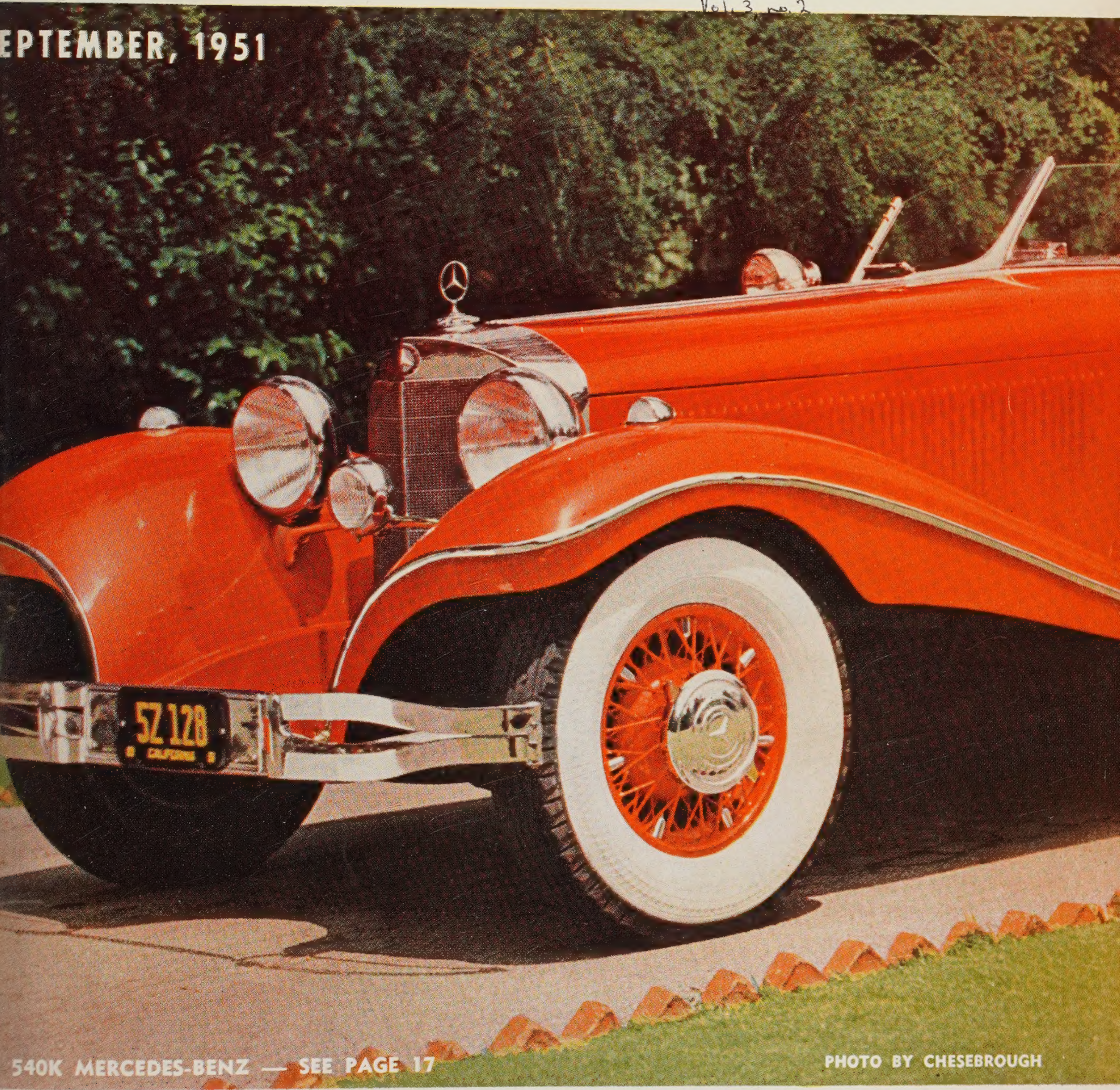
EPTEMBER, 1951

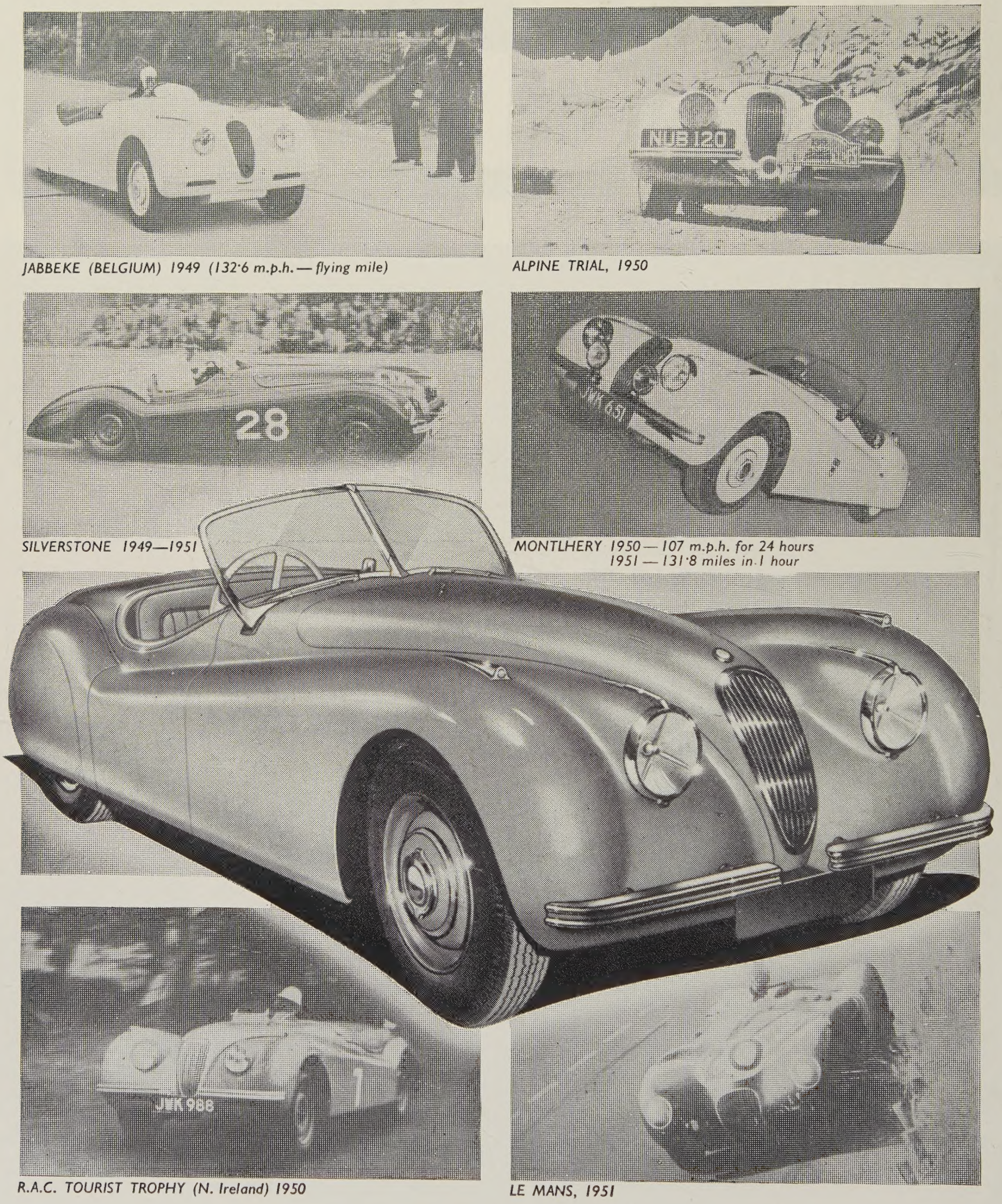


540K MERCEDES-BENZ — SEE PAGE 17

PHOTO BY CHESEBROUGH

The Motor Enthusiasts' Magazine

SOME OUTSTANDING VICTORIES AND ACHIEVEMENTS



JABBEKE (BELGIUM) 1949 (132·6 m.p.h. — flying mile)

ALPINE TRIAL, 1950

SILVERSTONE 1949—1951

MONTLHERY 1950 — 107 m.p.h. for 24 hours
1951 — 131·8 miles in 1 hour

R.A.C. TOURIST TROPHY (N. Ireland) 1950

LE MANS, 1951

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JAGUAR

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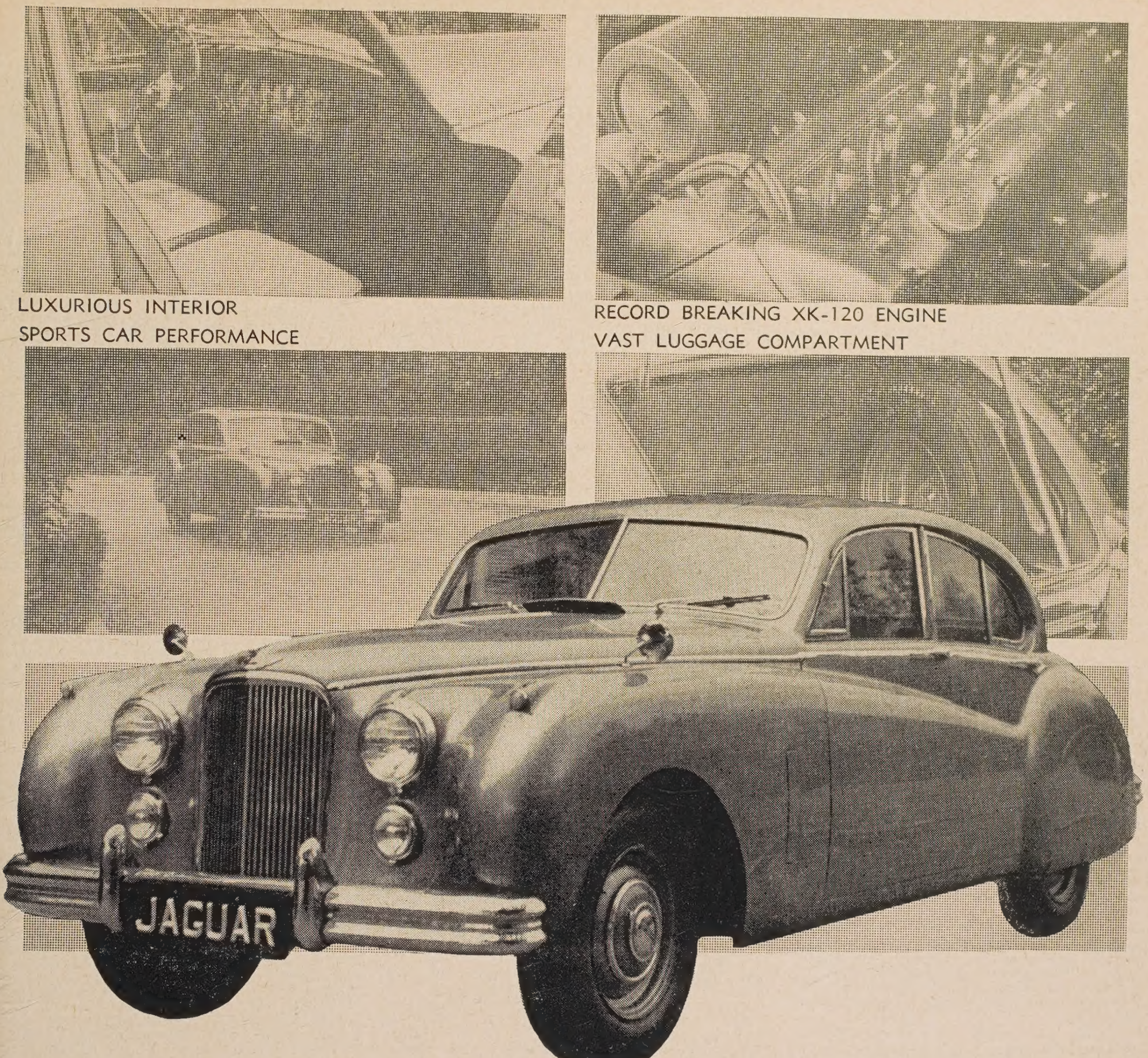

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CORRESPONDENCE

MILLE MIGLIA

In Italy this spring, I saw the start of the Mille Miglia, drove a Lancia, and spent an afternoon with Brandoli Marino, whose car is depicted on page 34 (Aug. R&T).

The road holding capacity of the Lancia was demonstrated to me when I drove from Venice to Brescia for the start of the race. It was raining and we had to get to Brescia before the road was blocked off for the race, which started at 9:00 o'clock in the evening. The owner of the car was fearful that we would not get there in time and he constantly implored me to "go faster." Even on wet pavement, the car was almost impossible to put into a skid except where the macadam was very smooth.

The race started at 9:00 o'clock in the evening with the small displacement cars, and one car left every minute until 4:30 o'clock in the morning, when the large sports cars departed. The numbers on the cars were identical with their starting time. Thus, car 405 started at five minutes past 4:00 o'clock A.M. and car 2355 started at 11:55 o'clock P.M.

In my two hundred miles of driving in Italy, without speed limits, I discovered that the California driver has a hard time taking advantage of the opportunities because of his habit of looking in the rear-view mirror. My afternoon with Brandoli Marino was a different matter. We drove his car in the city of Turin at over 100 kph and on the open road to catch a train, it was flat out at 140 kph. To prove that his suspension is good, he took his hands off the wheel, etc., while travelling at this speed. Incidentally, his little car is hand-made and would cost almost $3,000 if made up in orders of ten or more.

Los Angeles, Calif. J. Stanley Mullin

CANADIAN FORD & MERCURY

In Canada, rather than the three cars, Ford manufactures five cars, giving a wider range. Ford, Mercury and Lincoln automobiles are manufactured to the same specifications as used in the United States. The cars appear and ARE identical in all respects. The only difference is the price . . . about $600 more in Canada.

The METEOR is sold as an additional car by the Mercury Lincoln Division dealers. It is the same body as the Ford car, having differences in grille, various appointments, etc. It sells for (1950) $28 more than the Canadian Ford, but gives the Mercury-Lincoln dealers a lower priced car to market.

The MONARCH is sold by the Ford Division dealers. It is the same body as the Mercury automobile, differing in the superior grille, and various decorative appointments. It sells for (in 1950) $48 more than the Canadian Mercury, but gives the Ford dealers a higher priced car to market.

In Canada, you see Mercury-Lincoln-Meteor or Ford-Monarch dealer signs and Mercury as well as Ford trucks are manufactured.

Pittsburgh, Pa. Edward P. Luskey

FOUR-WHEEL I.F.S.

Your fine photo of the Lancia Aurelia failed to show the advantage the **four-wheel i.f.s.** mentioned in the heading. Realizing that this may well be due to space limitations, I enclose an honest-to-goodness artist's misconception of the car to be published in your letters department, where you have enough room to publish the same letter twice in one issue. (Does Sadler own R & T?).

I also noticed a reference to the **concentration** forces of an aluminum crankcase in extremely cold weather. In Russia mention of this sort of thing would put you in a **contraction** camp.

Inglewood, Calif. Harry E. DeWeese

OK, OK — Ed.

SSK MERCEDES IS S

The article on the Giant's Despair Hill Climb mentions that Charles Addams has a 1928 SSK Mercedes. Mr. Addams' car is an S Mercedes and not an SSK.

New York, N.Y. A. E. Goldschmidt

HUMBER ALSO FAMILY FRIEND

You say **Daimler** is the only British car holding a warrant from the English crown; you're wrong . . . **Humber** shares this honor with Daimler.

Re: article "Barlow's Simca, How Much Does It Weigh," the question might be better stated "How much does Barlow weigh and who cares."

Newport Beach, Calif. John Mills

Humber does hold a warrant. Roger weighs 12 stone, 11 pounds . . . Mrs. Barlow cares.—Ed.

AUSTIN A-40 HOP UP DISPUTE

Having hopped up quite a few A-40s, I find much to object to in Mr. Craig's article.

It would seem advisable to print a correction lest trusting readers follow his directions and rend head and block asunder or something equally disastrous. Viz.: 36 cc of head space would not give the stock compression ratio of 7.2:1 that the author implies, but rather 9.34:1!

$$(\frac{300+36}{36}=9.34)$$

Disregarding the space occupied by the gasket thickness, the figure for stock compression should be around 48.5 cc, and pouring in 40 cc, after polishing has been done, and measuring down to this surface will give 8.5:1 which is plenty for ordinary use.

This much is fact. The rest is more or less opinion.

It is almost universal experience that the Austin muffler-cum-tailpipe restricts gas flow. The difference after removal is immediately noticeable. If noisy mufflers bother you, use one of the silent straight-thru type.

Why on earth advocate a low axle ratio on a car with 4 speeds forward? Particularly when (a) the author himself says not to exceed 5000 rpm, and (b) the Austin with its 3½" stroke has rather more piston speed than is good for fast cruising anyhow. I'll grant the quicker acceleration, but consider that the not-to-be-exceeded 5000 rpm is reached at 72.3 mph with the 5.46 axle and not until 76.6 with the new 5.14 . . . the choice is obvious.

Portland, Oregon H. M. Manning

NO PANIC AT THE CORNER

. . . Bridgehampton Road Races [August '51 R & T], de Beaumont writes, ". . . Dick Irish, . . . spun sideways in the road, panicked, and abandoned ship." Ask Mr. de B to park an MG cross-ways on a blind corner with the driver's side facing the way from which he just came, shut off the engine, and wait for six or seven MGs to come "blasting" around the corner. If he stayed in the car, he would be either stupid or a darned fool!

The flywheel disintegrated as I was prepared to accelerate off the corner in second gear . . . a violent slide resulted, leaving the car in the middle of the road with no way of driving it clear. I knew that there were at least two cars close and four others further back . . . I "abandoned" the course, pulled off my crash helmet so that I could hear, ran right back to the car and pushed it clear as soon as I was sure that no one was coming. As to the "cries of the crowd" I was too busy listening for screaming exhausts to hear anything else. Every race driver that I've seen in a similar predicament has done the same thing

Cleveland, Ohio Richard (Dick) Irish

OLDS 88 vs MERC

Re: Les Berg's "Olds 88 has never been beaten," in an acceleration meet at Ramona Airport in San Diego County, a '49 Mercury ran the standing start ¼ mile in 18.85 seconds and a '49 Olds 88 in 18.93 secs.

Anaconda, Montana Wayne Hansen

BERG, OF OLDS 88 FAME, REPLIES

Started not to answer silly letters in answer to mine, but decided to put some of your letter writers (who talk like they've got the holes in their heads bored out oversize) in their place.

First, re Mr. McWilliams . . . I haven't raced a 61 Cad because no one here will race one. Cleaned two Lincolns with the greatest of ease. '49 Ford with heads and cam only, wouldn't be worth racing. I didn't say Olds had a body; I merely said "I haven't been beaten yet."

Second, re Mr. Campbell . . . I offered to drive several hundred miles to race Floyd Clymer and Mr. Clymer didn't let me know when he was in Indianapolis, Memorial Day (Inpls. is 145 miles and I was there anyway) so I must take it for granted that he didn't choose to back up his statements.

Third, re Mr. Needham . . . will race stock 500 cc B.S.A. for 10 miles for a $1000 bet. Winning car or cycle to be torn down after race.

Evansville, Indiana Leslie F. Berg

TRIBUTE TO OLDS 88

I have been following with great interest the cold war in **Road and Track** between Olds 88 owners and others driving everything from BSA 500 cc motorcycles to Greyhound buses. This sort of debate is fine as long as it remains friendly, but let's not start calling each other liars about competitive matters that are frequently academic, or fraught with extenuating circumstances.

It seems to me that this controversy between Olds 88 supporters and Henry J, etc., boosters might well be tempered with this thought. When Olds introduced the 88 in 1949, there were few, if any, concurrently produced cars with equal lb/hp rating, or with a high efficiency ohv V-8 engine like the Rocket. Naturally, the car leaped forth like a scared rabbit compared to a Fluid Drive Dodge, or more consecutively compared to a 1948 Olds 6. Equally naturally, Olds 88 owners got the impression that their cars were absolutely beyond compare in performance.

Well, this is 1951 now—not 1949 any more—and there are lots of American cars around now that are designed along the performance lines of the Olds 88—high power to weight ratio, high torque engines, and so forth. The Hudson Hornet, Chrysler V-8, Nash Ambassador, Studebaker V-8, Lincoln and even Dynaflow Buicks and Powerglide Chevys using low and drive shift are all capable of giving the Olds 88 some real competition, **including defeat at times.** So, apparently, is the Henry J.

So, fellow 88'ers, remember this. In 1949 the Olds 88 may have reigned supreme among American stock cars. Give Olds due credit for a chronological victory. But you can't expect Detroit to sit on its hands for two years and not do something about it. Enjoy your 88s for the fine cars they are, even tho they may not still remain the supreme performers. And remember this: The better ALL American cars become, the better your next car will be, whether it's another Olds or any other make.

Bethesda, Maryland Robert E. Shenton

With this excellent appraisal of the situation, the Olds 88, Henry J, et al controversy is closed.

THERE'S A LIMIT TO ACCELERATION

Reply to John "0 to 60 in 6" Snyder (July)

First of all, congratulations on rodding a stock car so successfully as to get 0 to 60 acceleration in 8.8 seconds!

Second, better take a quick look at the facts of life or laws of nature before spending hard cash on your dream car that will get that acceleration down to 6 seconds. Maximum acceleration of a tractive vehicle is lg. Assuming the usual two wheel drive and even distribution of weight front and rear, the maximum will be cut in half to .5g. Assuming further a very optimistic road traction coefficient of 80%, this will reduce acceleration to .4g. This gives us

with v = 60 mph or 88 ft/sec
and a = 4.g or .4 × 32.2 ft/sec/sec
then 88 = .4 × 32.2 × t
and t = 6 seconds

So, theoretically, friend Snyder now has something to shoot for. But where is he going to get an engine and transmission so perfect that it will apply the constant and steady thrust to the rear wheels which would be necessary? Even a torque converter type transmission isn't that good, and any ordinary transmission with the unavoidable pause for shifting is out of the question.

Regardless of increased power and reduced weight, the above limitations still hold good. Just for fun, let's see what kind of power is necessary to get the maximum acceleration of 0 to 60 in 6 seconds. Using the equations that force equals mass times acceleration, and power equals force times speed, we find that for a 3000 lb. car only 200 hp are required. Thus, Snyder with his light Ford coupe and 200 hp engine has done about all that is necessary as far as weight and power are concerned. Putting a 300 hp (?) Cadillac engine in a special chassis with total weight of 2150 lbs. (?) will not lower his 60 mph drag time appreciably.

If the lad really wants to spend money for acceleration to 60 mph, he should consider using two 200 hp Ford engines having Ford-O-Matic transmissions with a total weight of 3000 lbs. and four wheel drive. This would reduce the theoretical time to 3 seconds. Incidentally, John, better put a head rest in this job; otherwise you might get a crick in your neck when you tromp it.

Sigurd, Utah W. B. Morgan

"Guesstimating" indicates that the 600 bhp Auto Union could do the zero to 60 test in around 5 seconds.—Ed.

CORRESPONDENCE

LE SABRE — XP-300 BATTLE

PRO . . .

. . . Le Sabre is the most beautiful car designed yet. It is a prototype of the future car to be built in America. The designers did not have in mind a midget-sized, narrow gage car as most European sports cars are, but strictly a fast, high performance, good looking car, with luxury a keynote. It wasn't built to run on dirt roads and third rate highways.

Hickory, N.C. Wm. Deitz

CON . . .

. . . "Le Sabre" and "XP-300" are outstanding examples of Detroit's mistakes. Let them stay in the transportation class of autos if they can't do any better . . . experimental "Christmas trees" . . . a small piece of bait.

San Francisco, Calif. W. H. Santos

. . . . I have finally discovered what makes a modern American car look like a nightmare out of Buck Rogers . . . . a monstrosity with buck teeth and port holes . . . . we have men like Mr. Mawhinney designing them!

Reno, Nevada Gordon E. Pflog

. . . . His so-called advanced thinking is so advanced that it is blurred. He's been reading too many "Buck Rogers" comic books . . . . To remove doubt, have GM run "Le Sabre" (super sport) against the "Cunningham". They have comparable hp (300) so there shouldn't be any gripes.

Keesler AFB, Miss. PFC Fred K. Gamble

. . . . Borrowing from Buck Rogers "rocket ship" design shows the inability and lack of initiative of many present day designers to carry on the fine designs of the past, when automobiles looked like automobiles . . .

Huntsville, Alabama Carl A. Loy

Weight and balance means nothing (to Mawhinney) and suspension is out the window. Take your line and curve and your jets and your fins and never darken my garage door again Mr. Mawhinney.

Arcadia, California Ross Griffin

. . . . If "Buck Rogers" Mawhinney wants a wide car with short hood and rear engine, he should go drive a Greyhound bus . . . Le Sabre and XP-300 are warmed-over nightmares.

Albion, Michigan Frank Leeson

. . . . I suggest that "Le Sabre" be entered in the 1952 Le Mans, as it is allegedly a genuine prototype, and let it show up for itself.

The basic concept of design in "Le Sabre" is disgustingly analogous to a squashed, sodden cigar butt recently awash from the gutter . . . .

Woodstock, N.Y. David A. Wood

. . . . if the paramount purpose of industrial design is beauty thru utility—not at the expense of it—then such ideas as long wheelbases and "rocket" fins (which have a detrimental effect on utility) are a flagrant perversion of industrial design. Roger Barlow did not laugh at the specifications of the GM glamour cars in their entirety . . . . he merely pointed out that these features, broadcast thruout the land in saccharine terminology as a GM "exclusive of 1960", are quite well known to the motoring world of today.

Mawhinney and the rest of the opulent Detroit bunch will have to arise far out of their present quagmire of competitive stagnation to emulate the exemplary performance of Barlow's Simca special.

As the scintillating apex of Mawhinney's automotive unenlightenment, he states that Road and Track correspondents need to be educated on "atomic age" design. As a contradictory contention, I might state that jet spears, "dollar grin" grilles, and rocket fins—all made of heavy, chrome-plated pot metal—are closely related to the "Gingerbread" of the Victorian era —simply a fad of the day; obviously nothing to be copied, and most certainly not in good taste. The question hovers omnipresently: who needs to be educated?

Stockton, Calif. John F. Scott

. . . . isn't worth the $10,000 or $15,000 it would take to produce it.

Kansas City, Mo. Carlos Campuzano

Since Le Sabre is not equipped with a jet engine, and is not designed to fly . . . the jet tubes and the fins are certainly not functional.

Wouldn't it be much easier to **educate the designers** to what the public wants and appreciates? After all, there are so few designers and so much public.

Collingswood, N.J. George L. Morehead, Jr.

ROAD and TRACK

The Motor Enthusiasts' Magazine

American Road Racing Grows Up

By the time this is read, the Elkhart Lake road race will be history. It is expected that competition in this event will be the most interesting of any American road race to date, with East meeting West for the first time in sizeable numbers. Affaire d'honneur!

Now that Elkhart Lake provides a road race for the Middle-West, it may properly be said that road racing has returned to America. Watkins Glen, Bridgehampton, Sebring, Pebble Beach, Palm Springs, and now Elkhart Lake, are all top calibre circuits. A race for the Northwest, at Bellingham, Washington, is now scheduled and Pikes Peak will have a number of sports car entries this year. The only major gap in the geographical road race blanket of the U.S. is the Republic of Texas . . . surely room for a course couldn't be a problem.

All that is now needed to complete the sports car picture is international competition. When the volume of sports car sales in the U.S. warrants it, perhaps the European manufacturers will consider sending their best cars and drivers to participate here. What this would do to the amateur status of sports car events is something else to consider. It is becoming more and more difficult to draw the fine line between amateur and professional, with considerable backing of both car and driver by sports car dealers in so-called amateur races. We frankly do not know the answer, except to say that full scale Grand Prix road racing in America, under International Formula 1 or 2, will definitely be professional.

Second Mexican Road Race

The Second Carrera Panamericana Mexico will be run November 20th thru 25th. This year, the route will be reversed, starting at Tuxtla Gutierrez, in the south, and finishing at Ciudad Juarez, across the Rio Grande River from El Paso, Texas. The total distance is approximately 1965 miles, almost twice the length of Italy's famous Mille Miglia.

Prize money will total 590,000 pesos ($69,200 U.S. at the current exchange rate), ranging from 200,000 pesos for first place down to 10,000 pesos for 10th. Entry fee is 5,000 pesos ($585 U.S.). Entries open August 15 and close October 30, and are limited to 300 cars. Entry blanks are not yet available. The information also states, "It will a modified stockcar race, in a single category." At present, we do not know exactly what this means, but a full explanation is promised by race officials.

It will be recalled that almost all makes of American cars, plus the factory-entered Alfa Romeos and the Delahaye, participated last year. This great event, staged on our very doorstep, deserves the support of both domestic and foreign manufacturers as it is one of the longest, and could be the fastest, cross-country race in the world. Here might develop an international stock car marathon where national pride and export lay at stake.

Road and Track will provide both rules and entry blanks to serious competitors only. Write to Mexican Road Race Editor, Road and Track Magazine, Box 110, Glendale, California.

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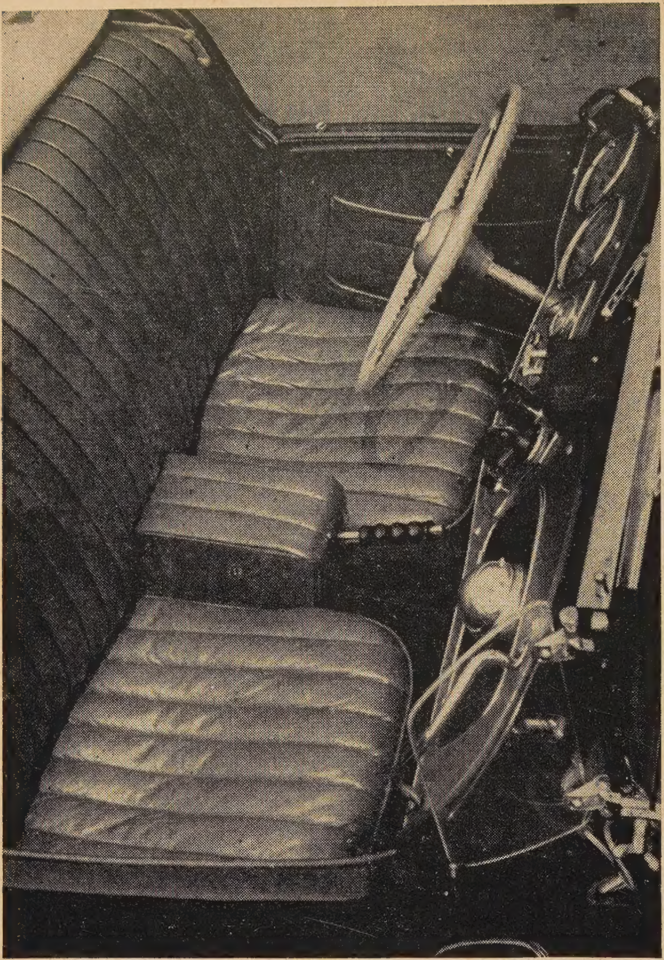

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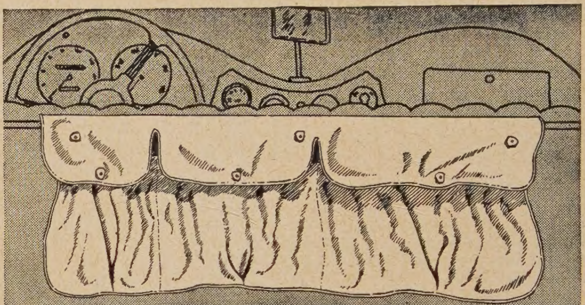

Snap-on Traveler. Snaps onto MG seat bar in a jiffy. 3 separate pockets—pleated for roominess—opened and closed easily by snaps. Made of the finest top material and usual Runyan quality workmanship. $9.50

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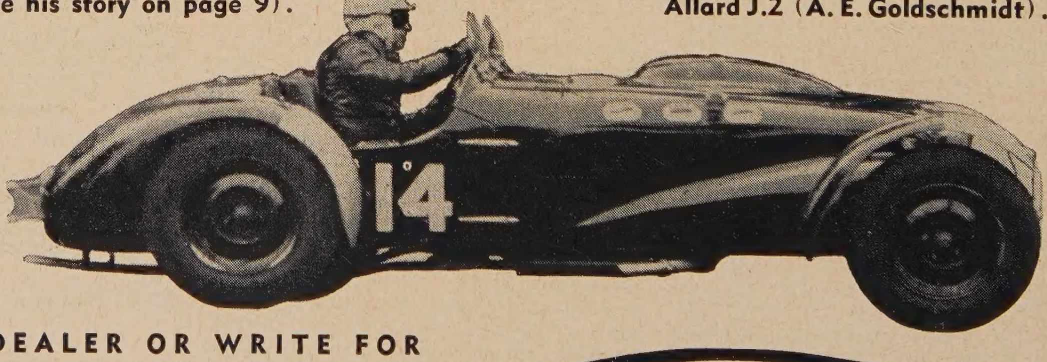
ALLARD J.2 WINS
..at PEBBLE BEACH..and BRIDGEHAMPTON

Bill Pollack in a Cad-Allard (shown at right) wins at Pebble Beach . . . 2nd place winner Jack Armstrong also drove a Cad-Allard (see his story on page 9).

Tom Cole, in a Chrysler-powered Allard J.2 won the Bridgehampton Road Race . . . 2nd place was also won by an Allard J.2 (A. E. Goldschmidt).



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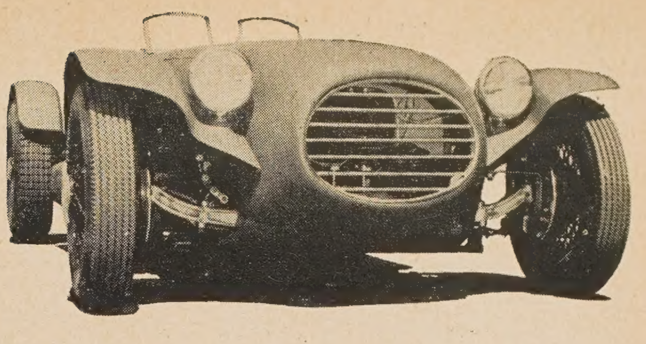
SEIFRIED SPORTS CAR

Article and Photos by Jack Campbell



When the dust cleared away from the track at Carrell Speedway (Aug. 29), it became quite evident to many sport car enthusiasts that local "know how" had produced quite a formidable opponent for the "other" school of thought.

In the feature race, first place was taken by a completely domestic sport car. Placing second and third were MGs that had their origin in England, but were recreated here by refugees (or *graduates*, if you will) from a hot rod background. Ernie McAfee's violently blown No. 88 being second, and Bill Cramer's V-8 60 MG pulling down 3rd spot.

This short preface serves to bring us to the discussion of the month: "is it, or isn't it?"* Knowing full well that this topic is loaded, I proceed with caution, but with determination, to describe a car that I consider a pretty strong bridge over a gap that needs bridging, and thereby a noble effort; the Seifried Sports Car.

About a year and a half ago, Dick Seifried started construction of a normal track roadster, complete with Ford side rails and a modified "T" body. Experiencing major difficulties in engine placement and in the meantime coming into contact with the rapidly swelling sport car movement, he scrapped the frame and again started from scratch.

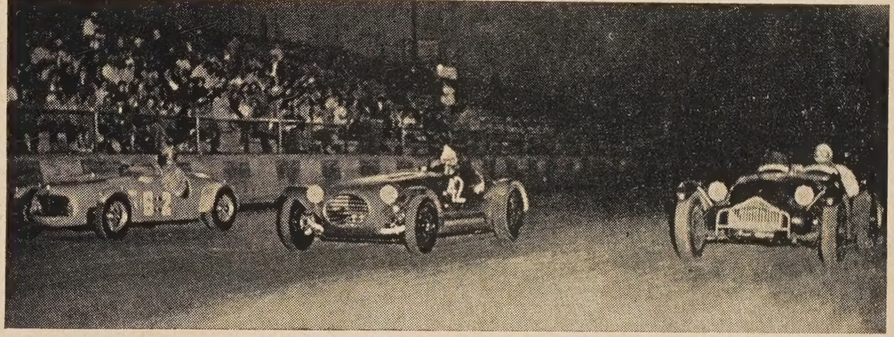
This time he decided to use a tubular chassis. The front axle is standard Ford, with normal transverse springs. Rear axles are 1928 Hudson, having safety hubs, and using a Cook quick-change differential. Steering is 1924 Franklin, having a ratio of 8-1, or about ¾ turn lock to lock. As for engine position, it is 26" aft of the front axle, which gives approximately a 40-60 weight distribution. The transmission is standard Ford, with the gear shift on the steering column. Wheelbase is 103".

One of the outstanding features is the body. Here the skilled hands of Mr. Richard Seifried, *Sr.*, came into play. Mr. Seifried, now with North American, but formerly of Mercedes and Auto Union, put his vast knowledge to work. All of the parts are hand formed and the finished body is truly the work of a master.

At a recent acceleration trial,** the car was weighed, tipping the scales at 1930 pounds. This was without fenders and headlights, and a few of the necessary things needed to bring it out of the hot rod (%$!*) category that most of these potent home built jobs are so easily relegated to. At present, however, the car stands complete and legal, ready for its trial on a road course. Also be it known that Dick will be the first to admit that he is dubious about the way his car will handle on the road course, and is already planning on I.F.S. for the future. At Carrell, it was never cranked full on, but at Santa Ana it reached a top of 104 mph in the standing quarter. Inches or no inches, this is rapid!

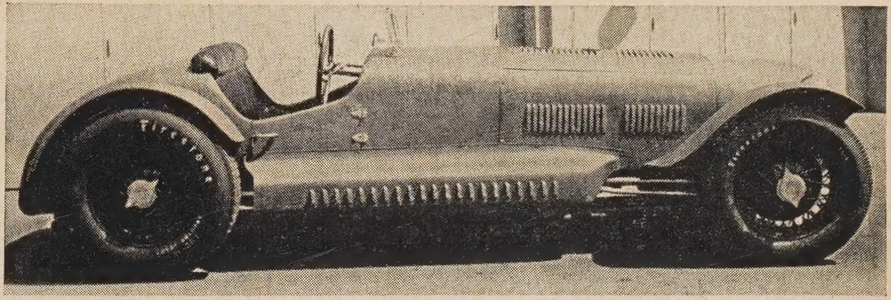
Dick has entered the car in two events this season: The El Segundo Acceleration Trials, and the recent Carrell Speedway Foreign Car Races. At the former event, the car literally ran off with the honors. It proved its accelerating superiority over the Jaguars and Allards that were present. At Carrell, the Seifried definitely showed that it was better in the dirt than the competing sports cars. Of course, this is not the whole story. It is quite possible that a Ferrari, a Cad-Allard, a competition Jaguar, or the like could show its heels to the Seifried on a twisting asphalt course. But that is not the point. What really counts is that Seifried has combined his own creativeness and ingenuity with the experience of his father to produce a vehicle which has given a sensational account of itself to date.

Seifried has wearied of hearing the old stuff about "too many inches," and is now getting started on a small car, to weigh about 800 pounds and utilizing MG components. Considering that the lightest MG now on the West Coast weighs 1300 lb., an 800 pound version should "go like a bomb." A real enthusiest is never satisfied.

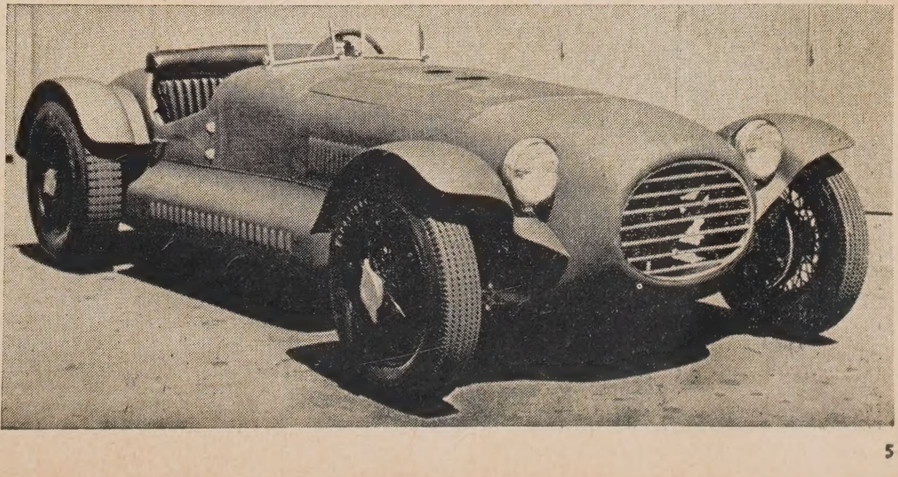


Start of the trophy dash at Carrell Speedway, which was won by the Seifried sports car after an interesting duel with Barlow's Simca special. Panzer's GMC-Allard J.2 came in third.

Side view, below, shows the neat fairing on the side of the body and abundance of cooling louvers. Doors, fenders and lights have been fitted since the El Segundo acceleration trials.



Below, the simple oval air intake, and excellent body work (by Seifried, Sr.), make the car seem "at home" among production models. Solid front axle is fitted (see article on page 12).



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*You know . . . hot rod or sports car?

**El Segundo, June 17, standing quarter and btd. 14.88 sec.

Le Mans Impressions

By George Huntoon

Editor's Note—George Huntoon was co-driver, with Briggs Cunningham, of No. 3 Cunningham at Le Mans.

The 1951 event at Le Mans saw, for the first time, a team of American cars . . . the three Brand new **Cunninghams** . . . untried and just out of the manufacturing jigs. The only other American entry was a special bodied Crosley running in the F.I.A. Class H. The Cunninghams were powered with the new Chrysler engine, decidedly modified and displacing 5,434 cc and being the only other entry in Class B with the Cadillac-powered Allards.

The terrific interest which the three new Cunninghams and the Crosley aroused in France cannot be fully appreciated unless one had been there to see it. Whenever the cars were on the street and were stopped for a moment, a minimum of 100 fascinated Frenchmen crowded around to peer thru the louvres. As Phil Stiles remarked, "If I had a franc for every French eye that peered down the carburetor stacks of the Crosley, I would be a millionaire in American money." There is no doubt about it, the simple and efficient beauty of the newly hatched bolides* took the populace by storm. Unfortunately, the 24-hour endurance race this year had the unprecedented misfortune of rain during 16 hours of the event. Nevertheless, the lap record for the course was in danger of falling during the heaviest downpours.

Two of the Briggs Cunningham cars spun out in the heavy rain and neither was able to continue due to minor damage. One car damaged its steering when the right front wheel collided with a small mound of earth. The other scraped its headlights off on the retaining wall. Cunningham No. 4, driven by Phil Walters and John Fitch, made an amazing show and was running in the second and third position behind only the Talbot or Jaguar. No. 4 had gone up from sixth spot during the sixth hour to second place during the eighteenth hour . . . then some of the valves burned. It had been lapping at an average speed of 90 mph (in the pouring rain) and had an overall average of 88 mph for the first 12 hours, including pit stops. After the valves burned, it was nursed around at a lower speed, but unfortunately a connecting rod started to go and the remaining time was spent either in the pits or lapping at 15 mph. It held together and made its qualifying distance to finish in 18th position and was the only finisher in Class B. The pace had been too fast for the Cadillac Allards altho one was still running at a snail's pace towards the end of the race.

The little Crosley, with George Schrafft and Phil Stiles driving, had given a remarkable account of itself. It was clocked at 78 mph average for one lap and was running well up into Class G with the Porsche and Panhard D.B. It was unfortunate that the Crosley's special generator should disintegrate at "lights on," thus retiring our only entry in the smaller classes.

JAGUAR XK-120 C: We had the opportunity to inspect these amazing cars which broke the distance and lap records for Le Mans, averaging 93 mph for the 24 hours. A team of three was entered and they drove as a team should. One car went out in front at a terrific pace while the other two stayed back. This team attack was tremendously successful as it succeeded in blowing up four of the six Talbots, the Allards and any other competition that was interested in chasing the Jaguars. Early in the race, the leading Jaguar, driven by Stirling Moss (of 500 cc fame), blew up and the special XK driven by Johnson and Biondetti took over the lead. The pace was phenomenal considering weather, and when finally the lead Jaguar gave up the ghost, the remaining team entry, driven by Walker and Whitehead, took up the challenge. This car ran faultlessly at a never-slackening pace. We had the opportunity to see several jaunts up the escape roads by the special Jaguars when "brake fade" set in. Two of the "XK-Cs" dented themselves up a bit on barricades, but apparently Walker and Whitehead never made a mistake.

TALBOT: Five of the six Talbots were the standard, Grand Prix type, fitted with fenders and of slightly widened body to conform with the Le Mans specifications. The sixth Talbot had basically the same chassis and engine but looked very smart with a sports type body somewhat similar to the Jupiter. The French drivers put on a tremendous effort to keep up with the flying Jaguars and one after another of the Talbots came into the pits, either completely "conked out" or with a mumbly exhaust rather than the sharp staccato with which it started. Large quantities of oil were being poured into all the Talbots and we often wonder how much was spread over the soaking wet course. Only two of the Grand Prix type Talbots and one sports bodied type finished. They won second, fourth and seventeenth positions, and took second, third and seventh in their class.

ASTON-MARTIN: Of the five Aston-Martin DB-II's entered, five finished the race in third, fifth, seventh, tenth and thirteenth positions. For a 2,580 cc car to put up such a performance against the larger-engined cars is indeed a triumph. The leading Aston Martin is reported to have used a total of only ten minutes for all pit stops during the whole 24-hour race, including one complete tire change. These cars performed in a manner superior to their showing in 1950, and gained the greatest laurels for speed and endurance considering the size of the engine. We had the opportunity to watch them at various points on the circuit and each driver was doing a superb job, altho it appeared to us that all five cars were being driven right on the "ragged edge" for most of the race.

NASH-HEALEY: Mr. Healey had a very interesting entry this year, having changed the body design from the open style to the closed, racing coupe. The car was aerodynamically very efficient and gave a fine account of itself with the 3,842 cc Nash engine.

FERRARI: Four of the new "America" models of 4,102 cc were entered, along with three 2,563 cc cars and one 1,995 cc coupe. At the beginning of the race, the 4.1 litre Ferrari, driven by Eddie Hall of England, was giving a fine account of itself around fifth or sixth position. It was running fourth right behind the Cunningham at the half-way mark. Most of the 4-litre Ferrari seem to experience clutch trouble and other minor difficulties . . . only one of these big cars, the Chinetti-Lucas entry, qualified in the race, finishing in eighth position. Bill Spear, who had experienced clutch trouble from the beginning, was still running at the end altho we suspect he was stopping in at the pit every now and then for a cup of coffee and a sandwich. Two 2.5 litre Ferrari and the 1995 cc Ferrari finished in ninth, sixteenth and fifteenth positions respectively. Ferrari No. 31 (16th position) was driven by our popular S.C.C.A. member Charlie Moran of Rye, New York. A very remarkable performance was put on by Madame Simone and Miss Hague in the 1.9 coupe to win 15th position and the "coupe des dames." Mme. Simone's pits boasted two lady mechanics. Obviously she was taking no chances of losing full credit for the female sex.

LANCIA (AURELIA): The twelfth position victory of the 1991 cc Lancia was one of the outstanding performances of the race. This absolutely stock production automobile, minus floor mats only, ran the whole race taking on one quart of oil, no water and no tires. I inspected the tires at the end of the race and it was obvious that they could have run two more 24-hour races before wearing out. The efficiency of its suspension is obviously the reason for this excellent tire mileage. Several of the American team members had the opportunity to drive the Lancia after the race, and all stated that the manner in which it takes corners is close to miraculous.

FRAZER-NASH: There were only two Frazer-Nash cars entered at Le Mans this year, both being 1974 cc. These cars gave a good account of themselves and finished in 14th and 19th positions, winning 2nd and 4th in Class E.

PORSCHE: Two of the 1086 cc models were entered, but No. 47 crashed two nights before the race during practice in the pouring rain. The writer happened to be about 25 yards behind the Porsche when it got into trouble and apparently the driver had over-extended himself in the downpour and got into a vicious spin at close to 100 mph. The car turned over several times, throwing the driver out of the door and onto the course, his body blocking one side of the road and the overturned car blocking the other side. We made a fast application of brakes and a double spin before ending up with our rear wheel only 10 feet from the injured driver's head. Apparently he wore no safety helmet or belt and obviously his door could not have been securely fastened. The other Porsche ran beautifully and took the 24-hour grind in its stride, coming in 20th overall and 1st in Class G.

PANHARD: There were three D.B.'s in the race, one had a Dyna engine of 861 cc and the other two sported the smaller displacement of 745 cc. These cars are basically Dyna-Panhards but are specially modified by R. Bonnet for superior performance. The D.B.'s had a very beautiful aerodynamic body which permitted them to attain exertmely high speeds for such a small engine. It was amazing to see the similarity in the design of the bodies of the D.B.'s, the Simca, and the Monopole and of one or two Renaults. As it is necessary to close in the wheels for better stream-lining, the body goes the full width and to reduce the frontal area, the distance between the top of the body and the underpan is kept to the very minimum; some of the drivers were almost lying down.

BENTLEY: A streamlined coupe, powered by a 4253 cc engine, was the only Bentley entry. The car finished in 22nd position but may have had some engine trouble. We were not able to get a report on its performance, but at the sixth hour it was running in the 25th position and at the half-way mark was still in that slot.

JOWETT "JUPITER": There were two 1486 cc Jupiters entered, but only one finished . . . in twenty-third position. These and the Simcas were the only entries in Class F and the Jowett was the only Class F entry to finish the race, thereby winning its class.

RENAULT: The performance put up by six of the standard rear-engined Renault sedans was really remarkable. Three of these cars finished the race in 24th, 27th and 29th positions. Car No. 50, driven by Landon and Briat, won Class H in front of the Monopole. The Renaults had the largest engines in this Class, being 747 cc. Our best guess was that most of these little sedans attained a speed of close to 95 mph on the Tours straight. The hardest luck story of the race came from the Renault entries and fell on the head of young Rosier, the son of the famous Louis Rosier, winner of last year's race and present French champion. Young Rosier was leading with No. 51 up to the last minute of the race and was completing his last lap when he lost control at high speed around White House corner. Skid marks showed that the car slewed first left then right and finally went off the road to crash into a stone wall only one kilometer from the finish line. Young Rosier was slightly hurt, but we can well imagine his feelings when he realized how close he had been to victory in his class.

MONOPOLE: This remarkable little car of 614 cc was the winner of the Index of Performance prize (handicap) by a tremendous margin. Its index was 1376 against the nearest (Dyna Panhard), 1351. **This all the more remarkable upon realizing that the Monopole spent one full hour in a sandbank at Tertre Rouge. The Monopole had won the handicap the previous year and repeated its performance with ease. It finished in 25th position out of the 30 finishers.**

DYNA PANHARD: There was only one standard bodied Dyna Panhard entered at Le Mans. It had the smallest engine of the field, being 611 cc. The little car gave an amazing account of itself and finished 26th in the field of 30, and third in its class. It was also second in the handicap.

NON FINISHERS

SIMCA: There were four 1495 cc supercharged aerodynamic models entered by M. Gordini in addition to one streamlined Simca of 1090 cc. We had the opportunity in practice to run behind one of the larger engined Simcas, and according to our tachometer, the little bolide* was doing 132 mph on the Tours straight. The acceleration out of the corners was phenomenal. Fortunately, we had the opportunity to become familiar with the course behind Simca No. 39 driven by Trintignant and Behra. The way Trintignant took the Simca into corners scared the life out of me on the first try, and one had to be right on the throttle at every minute to keep up with any of these cars. No Simcas were left by the half-way mark.

AERO-MINOR: The single 749 cc two-cycle Aero-Minor was still running at the sixth hour but by the half-way mark the drone of its two-cycle engine was absent.

ALLARD: Sidney Allard and Tom Cole drove a wire-wheeled Cadillac-powered Allard sporting a special hemispherical head designed by Arkus Duntov of Ardun fame. The high speeds attained on the straights plus the poor weather made it extremely difficult for the drivers and the special Cadillac-Allard walloped several hay bales. Engine failure eventually put it out of the race. The standard Cadillac engined Allard, driven by Hitchings and Rooce, did fairly well until the gearbox split. By stuffing the crack with rags, mud and grass, they were able to keep the car moving until the end of the race, but it did not make the qualifying distance.

DELETTREZ-DIESEL: Our only memory of the Delettrez-Diesel was either passing it with 80 mph more speed or having it go by the pits at about 25 mph. Apparently this Diesel ran into a lot of engine trouble similar to last year's.

MG: George Phillips entered a TD Mark II with a very special body similar to the Le Mans type Frazer-Nash. This very pretty car made a fine showing but eventually succumbed to engine trouble. Mr. Phillips was running the car at 9 to 1 compression. With the low octane gas provided us, the engine was doomed to burn a piston.

It was obvious that the Americans were the "foreign" favorites to the French and while only one American car qualified, it is very likely that one or two teams will be invited to the 1952 event. If so, the Jaguars had better look out!

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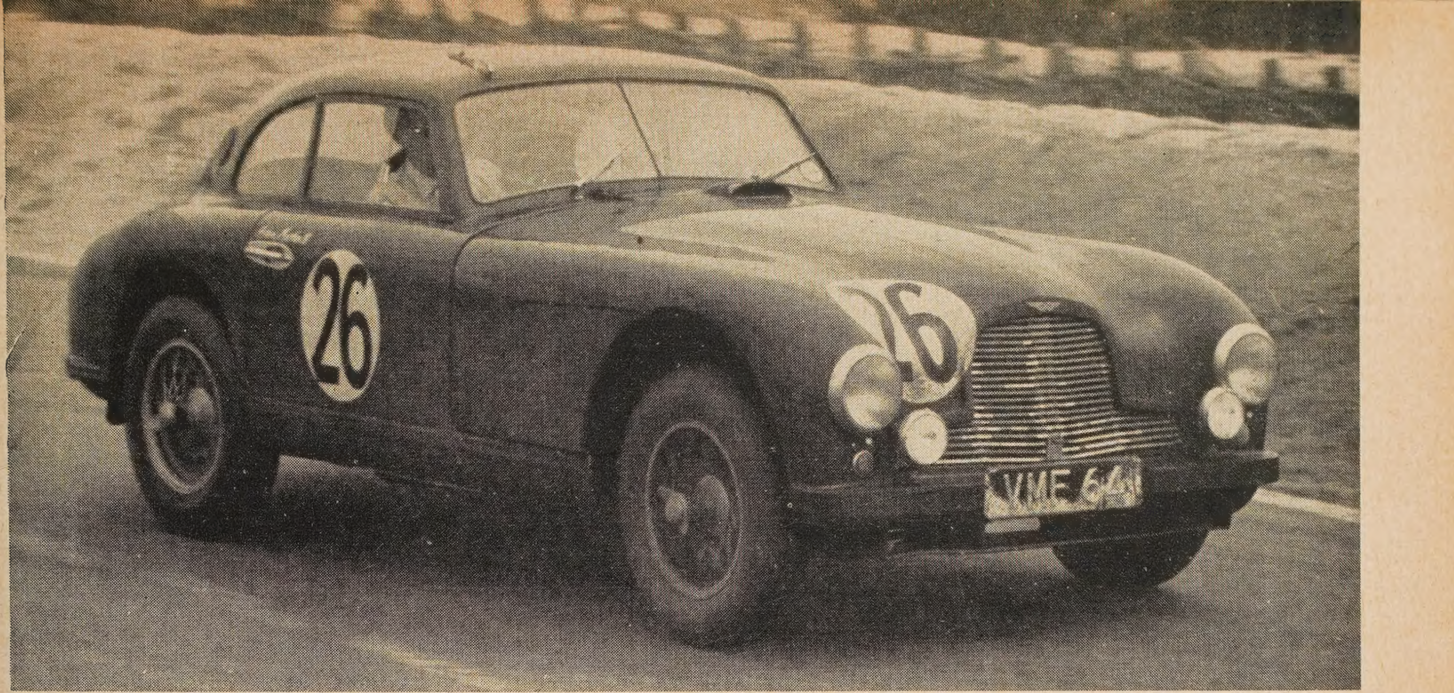
*Frankly, we didn't know what this meant, so we looked it up and Webster says a bolide is "a brilliant meteor; especially one which explodes." Oh! Mr. Huntoon!—Ed.

*Exploded again, eh?—Ed.



MISC. RAMBLINGS

by the Technical Editor

Last month we printed the results of the Le Mans 24-hour race, which was won at a record speed of 93.49 mph by the prototype Jaguar XK-120C. To me, Le Mans has always been the most important of all races. The distance is far more grueling than even the Italian Mille Miglia, the rules restrict entries to a type of car which supposedly can be purchased on the open market and will run on 80 octane fuel, and the road course tests every single component part of the car. On the list of non-finishers, we find failures of such items as batteries, generators, clutches, transmissions, rear axles, and, of course, engines. In comparison, Grand Prix road racing concerns a rather impractical and certainly expensive machine, giving 2 or 3 miles per gallon of alcohol and completely useless for anything except racing. Indianapolis is even worse, for it is a test of the engine and driver only. Tho the "500" is often claimed to be "the proving ground for the cars of tomorrow," engine testing could be done better and at a fraction of the cost on a dynamometer. Every major automobile company realizes this and maintains a more or less continuous program of engine endurance testing. Here, all the variable factors can be closely controlled, and many of the strange "theories" of race car mechanics are, frankly, laughed at by engineers of long experience.

But, getting back to the subject, two years ago Laurence Pomeroy, writing in *"The Motor"* about Le Mans, advanced a simple theory for use in predicting the "Le Mans Potential" of any given car. This was merely to use the ratio of piston area in sq. in. divided by the frontal area in sq. ft. Certain modifying factors like streamlining, or overhead camshafts, would be extra "plus" factors, but for quick comparison, the simple factor of $\frac{PA}{FA}$ is fairly reliable. For the 1951 Race, the combined plus factors incorporated in the Jaguar, plus the unpredictable factor of luck, gave this marque a very decisive victory.

The remarkable showing by Aston Martin, illustrated above, is unmatched in the history of Le Mans. We hear that this engine will be used in the HWM race car for the 1954 proposed Formula 1.

MAKE	MODEL	PA Sq. In.	FA Sq. Ft.	$\frac{PA}{FA}$	1951 Finish
Ferrari	340	93	14	6.64	8
Allard	Cadillac	91.5	15	6.10	
Cunningham	Chrysler	91.5	16	5.71	18
Talbot	Lago	64	15	4.26	2-4
Jaguar	XK-120 C	50.4	14.5	3.48	1
Healey	Nash	53.7	18	2.96	6
Fraser Nash	Le Mans	32.4	12	2.70	14-19
Aston Martin	DB-2	44.5	18	2.46	3-5-7

In this table the frontal areas are only estimates, but the results at Le Mans over the past 3 years seems to bear out the accuracy of such a ratio.

That the French Talbot-Lago models were allowed to run again is somewhat discouraging, because the Le Mans race is for production or prototype production sports cars, not thinly disguised race cars. The Talbots run in nearly every European Formula I event as full Grand Prix cars under the rule which allows up to 275 cu in. unblown. The lax French regulations allow light cycle fenders and 2-seater bodies to be added and the cars are eligible sports cars? This would not be so bad if this Talbot-Lago model could be bought on the open market, but for some unknown reason the firm has not marketed a sports car since before World War II, and seem content with selling 3 or 4 cars a year (to this country) equipped with expensive and heavy custom bodies in closed and convertible styles.

Since 1937 a F.W.D. Cord has held the Stevens Perpetual Trophy at an average of 95 plus mph for 24 hours, with a stock closed car, and on Indianapolis Speedway —as required by the rules. Last June the same Lincoln sedan which won the Gilmore economy run was to try to "take" this record, but to date we have heard nothing further. There have been loud squawks on the methods employed by the 1951 Economy champ, which while legitimate, are hardly fair to certain other entrants. Lincoln, in the 1951 event, used a trick similar to the one that worked back in 1941 when the winning Lincoln used *both* the optional 2-speed axle and the optional overdrive transmission, giving an overall gear ratio of around 2.2 to 1. For 1951, Lincoln used the 3.31 axle, which is standard for the "underdrive" type Hydramatic transmission, but for the transmission, they used the manual-shifted 3-speed unit with overdrive. The effective axle ratio works out at 2.317 to 1, a combination which any prospective purchaser of a Lincoln would immediately refuse to buy if he drove it beforehand. However, by locking out the overdrive, and driving direct on the 3.31 gear, the performance with the big Lincoln engine and the Mercury body shell is still quite acceptable. In fact, the 3.31 axle is just about optimum for getting the most top speed out of this car. With 152 bhp, the potential is just short of an honest 100 mph, and at 100 mph the 3.31 axle gives 3850 rpm of the engine, or just over the peaking speed. 3850 rpm is equivalent to a piston speed of 2810 ft. per min. so the chances of beating the Cord 24-hour record would appear very slim. And, shifting into overdrive would not help at all—in fact, at 100 mph the rpm drops to 2700 and the bhp to 130, so the impossibility of maintaining even 95 mph on the "four-cornered-brick-yard" is evident. On the 2.317 ratio this car would have a performance about equal to a demonstration run I once had. This was in an 8-cylinder Auburn running with four rods and pistons removed (during gas rationing) and the one-armed driver used all 6 forward speeds in proper sequence from each stop. Since the 2-speed axle was controlled from the center of the steering wheel, I think this "activity" beats the one-armed paper hanger story . . . . and it's absolutely true.

I recently read an article reporting the performance of the Alvis Speed 25 as follows:

0 to 100 mph in 12.3 seconds, top speed clocked at 118 mph. My files disclose that the Speed 25 accelerates from 0 to 50 mph in 11.1 seconds so presumably the 50 to 100 mph time is 1.2 seconds! The mean maximum timed top speed over a ¼ mile is given as 94.99 by the *Autocar* for June 10, 1938. Wonder what "clocked" top speed means? By way of interest, this Alvis had one cu in. more than our standard shift Chevrolet and developed 115 bhp at 3800 rpm.

Old timer for this month is a 1931 Stutz SV-16 4-door sedan. Our good friend, the *Autocar* for April 3, 1931, gives the timed top speed as 73.17 mph. Now we can understand how an Austin A-40 sedan could beat by 4 hours the 1931 Stutz's coast-to-coast record of 58 hours. The A-40 has a top speed of circa 73 mph, and, of course, roads have improved since 1931.

Mexican Road Race Rules for 1951

(The following is an English-language translation. The Spanish-language text is the official version, and will be the basis for rulings in the event of any dispute.)

Article 1.—The Asociacion Nacional Automovilistica (A.N.A.) has organized the Second Mexican Pan-American Race in the form of an international speed competition, in accord with the terms of the International Sporting Code of the Federation Internationale de l'Automobile (F.I.A.), and under authorization of the Mexican Secretariat of Communications and Public Works.

DISTANCES AND ROUTES OF THE COURSE

Article 2.—The Race will be run from south to north, starting at Tuxtla Gutierrez, State of Chiapas, and ending at Ciudad Juarez, State of Chihuahua, with a total course of 3,113 kilometers (1,933 miles)[1], passing through the cities of Oaxaca, Puebla, Mexico City, Toluca, Queretare, Leon, Aguascalientes, Zacatecas, Durango, Parral and Chihuahua.

DATE OF START AND DURATION OF RACE

Article 3.—The Race will begin November 20, 1951, from Tuxtla Gutierrez, Chiapas, and will finish November 25 in Ciudad Juarez, Chihuahua, with the following itinerary and legs:

Leg	Route	Date	Distance	Max. Time
1st	Tuxtla Guttierrez —Oaxaca	20	530 k. (329 m.)	6:00 hrs.
2nd	Oaxaca-Puebla	21	412 k. (256 m.)	4:30 hrs.
3rd	Puebla-Mexico City	21	130 k. (81 m.)	1:15 hrs.
4th	Mexico City-Leon	22	430 k. (267 m.)	3:45 hrs.
5th	Leon-Durango	22	537 k. (333 m.)	4:30 hrs.
	November 23—Layover in Durango			
6th	Durango-Parral	24	404 k. (251 m...	3:30 hrs.
7th	Parral-Chihuahua	24	300 k. (186 m.)	2:15 hrs.
8th	Chihuahua-Cd. Juarez	25	370 k. (230 m.)	2:40 hrs.

Article 4.—The driver who does not finish within the maximum time established in the previous table for any of the legs will be automatically eliminated from the Race.

LIMIT ON ENTRANTS

Article 5.—The limit on entrants is 300. If entry applications exceed this figure, they will be listed, in the order of receipt at Race headquarters, for inscription in the event of cancellations.

ENTRY FEE

Article 6.—The entry fee is 5,000 Mexican pesos ($579.50 U.S.)[2], for each automobile, including only the right to participate in the race.

Article 7.—Entries will open August 15, 1951, and will close October 30, 1951, at midnight, Mexico City time, this deadline being unextendable. For mail entries, the date will be considered that which appears in the postmark on the envelope, and for telegraphed entries, the time of sending which appears on the message, which must state the names of the competitor (owner), driver and assistant, as well as the make of the automobile.

ENTRY FORMALITIES

Article 8.—For an entry to be accepted, it must be delivered to the offices of the Race, Calzada de Cuauhtemoc 607, Mexico City, using the entry blank which is available at the offices, and accompanied by the entry fee.

The competitor and driver, as well as any assistant who is to have the right to substitute for the driver in any emergency, must have the respective competitor's (owner's) and driver's racing licenses. These licenses should be obtained from the Asociacion Nacional Automovilistica, Sullivan 51, Mexico City, if the competitor and crew are Mexicans or are residents of Mexico; and, for participants from another country, from the national automobile club affiliated with the F.I.A. which holds the automobile sporting authority in that country.[3]

Without the sporting licenses referred to, no competitor nor driver may be entered in the Race.

REJECTION OF ENTRIES

Article 9.—The Organizing Committee reserves the right to reject any entry application without explanation.

Article 10.—All automobiles participating will be classified in a single category, regardless of number of cylinders, horsepower and year of manufacture.

Article 11.—The participating automobiles must have the following characteristics: Closed body with capacity for at least four seats; engine, chassis and body corresponding exactly to the series and makes of the automobiles as listed in the manufacturer's catalog, it being absolutely forbidden to install the engine of one series and make in the chassis and/or body of another series and make.

Use of a supercharger or modification of the camshaft, which must be strictly "standard", also are prohibited. Except for these limitations, the characteristics of the engine, suspension, brakes, etc., may be altered.

Article 12.—If, in spite of the freedom granted to the competitors to alter the mechanical characteristics of their automobiles, any of the competitors wishes to enter an automobile of series and catalog without any change whatsoever, as totally "standard," he may so state in his entry application, and, subject to a technical examination, will be issued a certificate attesting to this fact. If the examination reveals that the engine has been changed, this will not in any case result in disqualification, but only in the loss of the right to the certificate, and a complete ban on any sort of commercial publicity regarding the "standard" type vehicle.

Article 13.—"Convertible" or "removable-top" automobiles of any make or model are excluded from the Race, and consequently may not be entered even if they have been adapted with a closed body made of iron, steel, wood or any other material. Any such attempt shall be considered fraudulent, and will be penalized with disqualification and the loss of the entry fee.

TIRES, FUEL AND LUBRICANTS

Article 14.—Competitors may use any tires or lubricants they wish, additives being permitted. The only fuel permitted will be Supermexolina (an 80-octane gasoline produced by Pemex).

SUSPENSION

Article 15.—In the event that an entry application is rejected, or if a driver is forbidden to start at the beginning of the Race, or if the Race is suspended because of forces which in the judgment of the Organizing Committee are beyond control, the competitor shall have no other right than the refund of the entire entry fee or fees which have been paid.

COMPETITOR

Article 16.—Any persons, organization or company may be a competitor, with the power to enter one or more vehicles in the Race, if in possession of a competitor's license, as stipulated in Article 8 of these Rules.

Article 17.—The competitor shall designate the driver and assistant at the time of submitting his entry application, having the right to change them before October 30, the date when entries close, and also if, in the event of any duly attested accident, or illness, either or both is unable to take part in the race. The competitor shall be able to make changes in the crew without their consent before October 30, 1951, but must have their consent to any changes after that date, unless they are physically incapable of giving it.

Article 18.—The competitor, the driver and the assistant shall take part in the Race under their own exclusive and absolute responsibility, accepting personally all the risks inherent in their participation in it.

DRIVER AND ASSISTANT

Article 19.—The driver, in order to be admitted to the Race, must be in possession of a driver's sporting license, in accord with Article 3 of these Rules, and if the assistant wishes the right to substitute for the driver in any emergency, he also must possess a driver's license.

ORDER OF STARTS

Article 26.—Vehicles shall start at intervals of one minute from Tuxtla Gutierrez, Oaxaca, Mexico City, Durango and Chihuahua. The first start shall be made with the automobiles lined up in single file in the order, from the lowest number to the highest, established in the drawing.

The starts from Oaxaca, Mexico City, Durango and Chihuahua shall be in the order of the standings of the cars in the Race as a whole at those points, without regard to their positions in the latest leg.

The starts from Puebla, Leon and Parral shall be made exactly in the order of the arrival of the automobiles at those cities, and each automobile shall leave exactly 30 minutes after its arrival, after refueling. In no event may the Control Judges authorize the start of a vehicle after a shorter lapse of time; they must enter in the Route Book a notation regarding whatever pressure was put on them to permit on earlier start, such notation being a possible basis for disqualification.

PRIZES

Article 39.—The following prizes have been established for the winning competitors:

First place	200,000 pesos ($23,180)
Second place	125,000 pesos ($14,487)
Third place	100,000 pesos ($11,590)
Fourth place	50,000 pesos ($ 5,795)
Fifth place	25,000 pesos ($ 2,897)
Sixth place	10,000 pesos ($ 1,159)
Seventh place	10,000 pesos ($ 1,159)
Eighth place	10,000 pesos ($ 1,159)
Ninth place	10,000 pesos ($ 1,159)
Tenth place	10,000 pesos ($ 1,159)

These prizes will be delivered to the winning competitors approximately three days after the end of the Race, at a place which will be announced.

Besides the prizes listed, there will be a prize of 5,000 pesos ($579.50) for the winner of each of the eight legs of the Race.

Editor's Note: The above regulations are excerpts of a translation supplied to us by the A.N.A. Complete rules and entry blanks will be available, and will be supplied only to bona-fide entrants.

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[1] Official race distances are in kilometers, one of which is equal to 0.621 miles.

[2] Calculated at the current bank rate of 8.63 pesos to one dollar.

[3] In the United States, this club is the American Automobile Association, and licenses are issued by the A.A.A. Contest Board, Pennsylvania Ave. at 17th St., Washington 6, D. C.

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☐ Apr. '51
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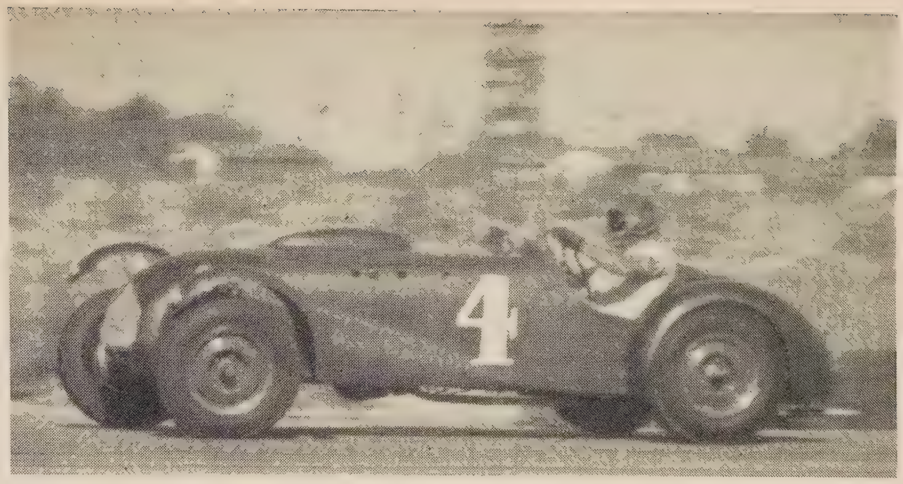
☐ June '51
☐ July '51
☐ Aug. '51

My Favorite Sports Car . . .



The Cadillac-Allard model J.2 is the best all-around sports car in the world today! Now all of you Ferrari, Alfa, MG, Jaguar (etc.), lovers line up on the right and start your arguments from there. The above opinion is that of Jack Armstrong . . . *Road and Track* absolutely refuses to get involved in the middle of any such hassle as Jack's statement is bound to produce.

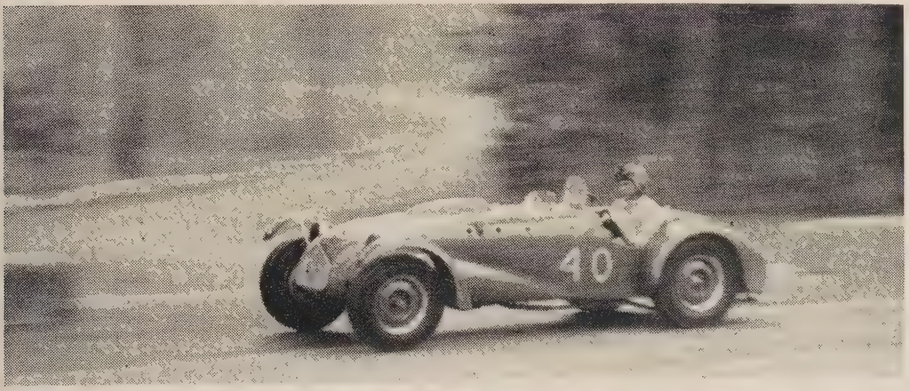
Many cars, or at any rate, *some* cars available today can be used for competition as well as everyday use. However, *Jack* feels that only the Cadillac engine as installed in the J.2 chassis offers enough urge to be truly satisfying. After all, he reasons, it gets a little tiresome, always having to apologize for the performance of your hot little 1¼ litre machine. How many times have you had to say that it "goes very well considering its small engine" asks Jack?

Armstrong also believes that his sports car should be capable of carrying him about his business in reasonable comfort as well as being able to give a decent showing on Sunday at the acceleration trials or hill climbs. True to his beliefs, Jack drives his Allard to and from work each day—work in his case being the duties of a test pilot for Douglas Aircraft. Inasmuch as the car must perform reliably, very few modifications have been made. The engine has been left completely stock, but the British "dampers" have been replaced by a set of Columbia shocks, and because the factory-specified Ford transmission practically spun the rubber off the wheels even in second gear, a set of 1940 Lincoln Zephyr gears were installed. As it stands now, the Allard may be started rapidly in low gear as long as a delicate foot is used on the throttle. For some reason the original camshaft was faulty; however, the stock replacement has worked out well and the cam lobes this time seem to be adequately hard.

Jack Armstrong's J.2 has a top speed of 110 mph. But as he says, "she gets there quickly and then you are done." The 110 mph mark is reached at the point where the stock hydraulic valve lifters begin to "pump up."

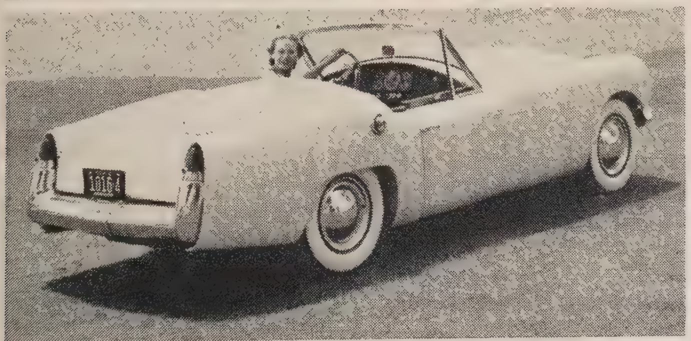
Maiden trial of both the car and the driver came at Palm Springs where they finished second to Marshall Lewis (in Kimberley's Ferrari) after a very steady drive.

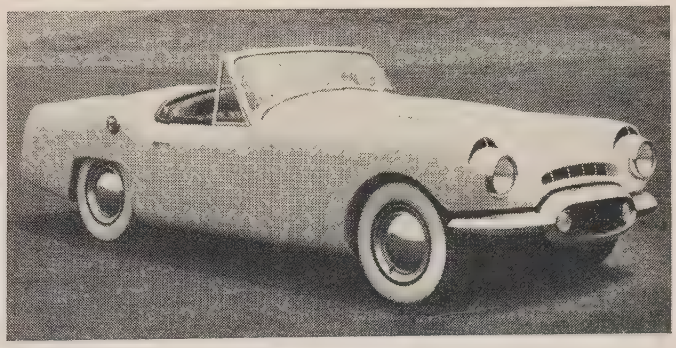
At the more recent Pebble Beach meeting, the car proved its reliability. Armstrong drove the 350 miles from Hollywood to Pebble Beach Saturday morning and arrived just in time to qualify 4th with the rear locker still full of luggage. During the two races on Sunday, Jack drove as at Palm Springs . . . steadily. "Uppermost in my mind was the knowledge that the car had to get me back to Los Angeles in time for work Monday morning" Jack says, and it might be a good idea for more drivers to adopt this frame of mind, for in the feature race, Armstrong's Allard was only a few feet behind Bill Pollack who, of course, was driving Carsten's full-race Cadillac-Allard. Actually, Jack held first a couple of times during the race, when Pollack spun out, tho he realizes Pollack could have passed him at any time with perfect ease, and is quick to say so.



Admittedly, the J.2 is not meant for comfortable, long distance transport, mainly because the windshield and top give little protection from the wind. Even so, the riding qualities and seating position are excellent and a proper set of windwings should eliminate some of the tempest in the cockpit. Inevitably, a sports car must sacrifice something for the sake of lightness and the Allard is certainly not heavy at 2350 pounds.

Jack Armstrong started his sports car driving in an MG, which was later blown for more performance. However, since then he has had the Allard which allows him to enjoy the sport with a minimum of maintenance. Proof once more, Jack says, of the old adage that there is "no substitute for cubic inches."

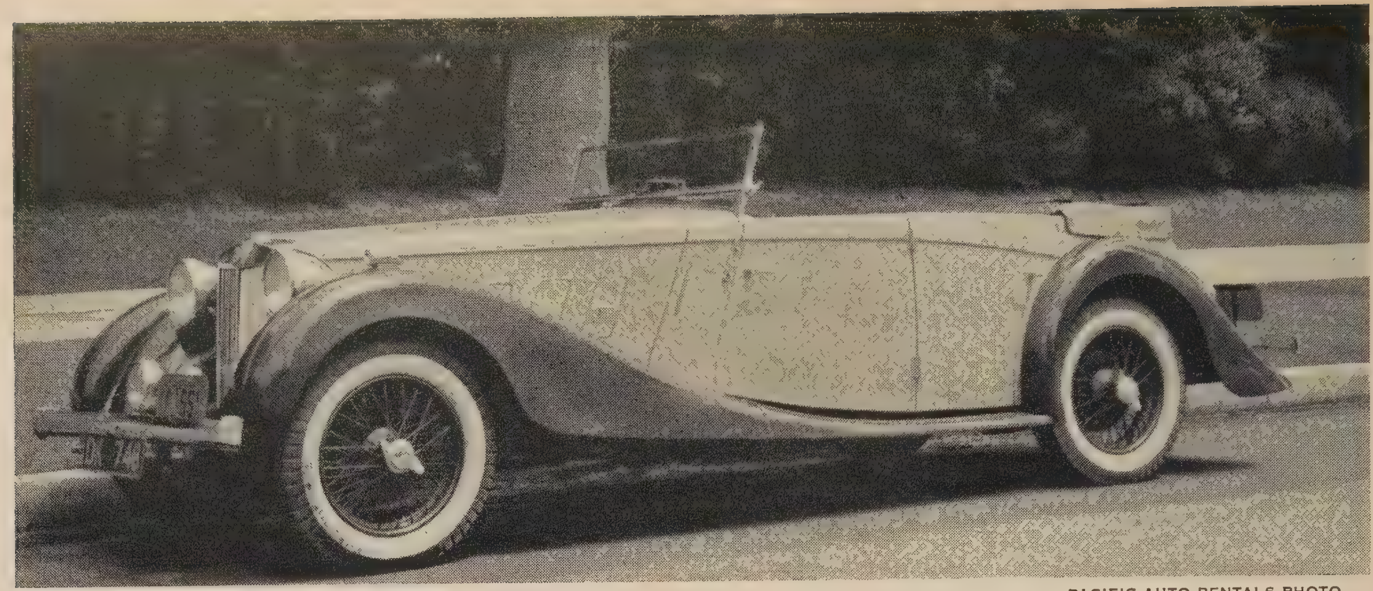




CAR CONTEST . . .

YOU NAME IT!

Here is an incentive for all little boys to grow up to become star baseball players. The Johnson Wax people are presenting this car (which appears to be a slightly customized Nash Healey) to Ted Williams of Boston Red Sox fame. Mr. William Flajole, who designed the car, said "I tried . . . to express the modern age." Along with the business of giving Mr. Williams the car is a contest, the winners of which will get free all-expense trips to World Series games, money, autographed baseballs and portable radios. The girls will get sterling silver charms . . . Send *your* entry to Car-Plate World Series Contest, Box 6970, Chicago, Illinois. If you don't enclose a paper disk from a can of Carnu, you won't win anything . . . and your entry must be postmarked by Sept. 1. The contest should be easy. All you have to do is name the car.



PACIFIC AUTO RENTALS PHOTO

The MG Magna which appeared in the Selznick production "Rebecca," driven by Laurence Olivier. Supplied by Pacific Auto Rentals.

Did you ever wonder where those unusual cars in the movies came from?

You Saw them in . . .

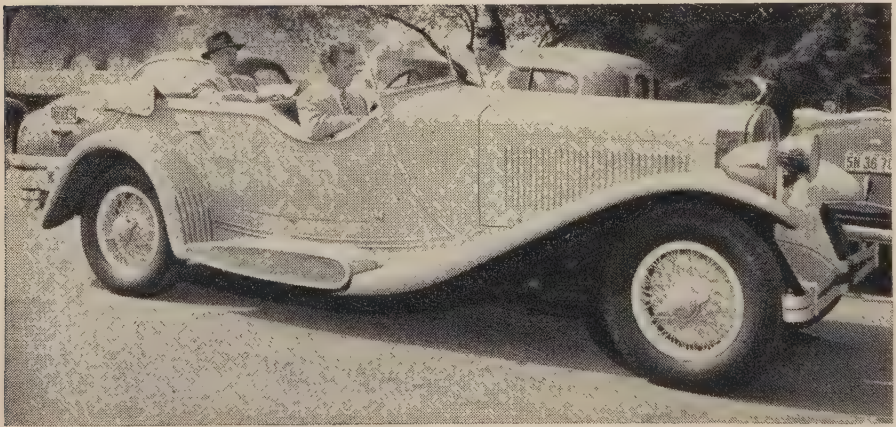
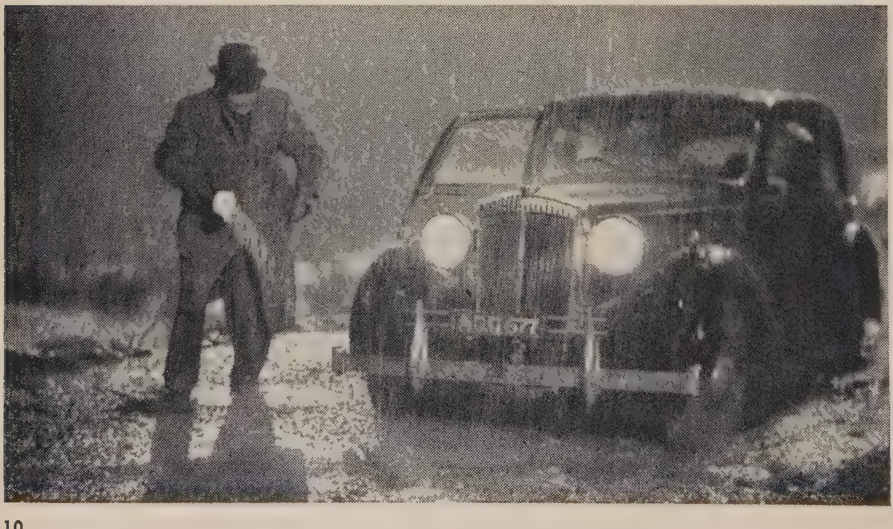


PHOTO COURTESY 20TH CENTURY-FOX FILMS CORP.

Above, the Isotta-Fraschini which has appeared in several pictures, including "Follow the Sun," and "Mr. Imperium." A 1934 model, it has a Castagna body, 8-cylinder engine.

Below, the Daimler which was used in "Bonaventure," a Universal International picture. It is a 1939 6-cylinder model with Wilson gearbox. Gavin Muir is the gentleman getting wet.

PHOTO COURTESY UNIVERSAL-INTERNATIONAL PICTURES



The following is the first of a series of articles covering unusual cars which have appeared in motion pictures. Many people have caught a fleeting glimpse of some car in a movie and have wondered what make it is. If you have any puzzlers of this sort, send your queries to the author, Samuel Weill, Jr., care of Road and Track, Box 110, Glendale, California.—Ed.

by Samuel Weill, Jr.

"Wanted—One Rolls Royce Town Car. Picture Work. $275.00 per day." A tantalizing advertisement to be sure, but like the full page spreads touting the advantages of the Queen Guenevere bustle, slightly out of date! Motion pictures have come of age, and with that maturity firmly in mind, the men who run these fabulous flicker mills have one eye cocked on the product and the other on the costs. This does not make them cockeyed, but does tend to have a tightening effect on their fists, particularly when some expensive piece of rolling stock is involved.

When motion pictures were emerging from the single set, one reeler stage, and beginning to show more action and general mobility, any car that was needed as a necessary adjunct to the plot could generally be arranged for on the spot from one of the actors (one of the more fortunate actors, that is) or some other member of the company. The rental price varied according to the haggling propensities of those involved, but was seldom more than a few dollars. This seemed to satisfy everybody concerned, but as the technical qualities of the pictures improved and plots began to show more individuality, this hit-or-miss method was abandoned, and regular automobile rental services and U-Drives were patronized. Rental prices now began to rise, but then, so did the type of car used, those in the "20's" being mostly Duesenbergs, Packards, Cadillacs, and Lincolns, together with a sprinkling of the more exotic foreign marques.

Pacific Auto Rentals of 310 South Berendo in Los Angeles was one such rental service which began to do a large business with the studios during the mid-twenties, hiring out cars both for the use of studio executives and for visiting "royalty." This aspect of the business began to wane when the ownership of cars became more commonplace, and the bulk of their business started to come from luxury cars rented out for use in films. As this latter facet began to develop, the everyday rental business was slowly dropped, and the collection of odd and rare cars was started. This collection now numbers over 120, and starts with an 1898 Holsman Surrey which is still in excellent running condition. Such names as Mitchell, Winton, Minerva, Aston-Martin, Reo, Jordan and Lagonda are commonplace here, but all these prizes are kept under lock and key, as Pacific does not cater to the tourist trade!

Today, all their business comes from cars rented to the studios for picture use, and they list as well, many privately owned machines for which they act as agent. If you have a near spotless Krit or Crane-Simplex knocking about the north forty, you might drop them a line concerning its possible use in some future production, but PLEASE, no model T's! Anything you might have, antique, vintage or classic could possibly be a "movie car" so . . . ! (Of course if you live in Pishtemple, Kentucky or Kidneyfoot, Nebraska and feel that the old Craig Toledo wouldn't quite make the trip, save the stamp!)

Pacific furnished the 1908 Mitchell touring car to RKO Radio Pictures for "I Remember Mama" with Irene Dunne and Oscar Homolka. Its paint and brasswork gleaming, this four cylinder beauty was an important prop in that picture and performed yeoman service in chugging bravely up and down some hills that would slow down many a more modern car.

This same Mitchell was also used in Universal-International's production "Comin' Round the Mountain" with Abbott and Costello, but as you can see from the photograph, it wore mud makeup in this gripping drama, and its apparent condition would bring tears to Tom McCahill's seeing eye, Joe the retriever! This sad state of affairs was purely temporary, however, as the transportation and property departments of the various studios have experts who lavish care on these rented relics, and make sure none of them are harmed in any manner.

The MG Magna illustrated, is a 1937 model belonging to Pacific, and is a rare piece indeed, being a four door phaeton, very few of which were made. It has a six cylinder ohv engine of 1087 cc displacement, and develops 41 hp at 5,500 rpm. If you saw the David O. Selznick production "Rebecca" you saw this car, with Laurence Olivier at the wheel and Joan Fontaine by his side. (Your writer also drives an MG, but so far has been unsuccessful in obtaining Miss Fontaine for a passenger.)

One of the prize beauties in Pacific's collection is the 1934 Isotta-Fraschini 2-door 4-passenger touring car which was used in the 20th Century Fox production "Follow The Sun." As seen here, the back seat is occupied by Larry Keating and the front by Dennis O'Keefe and June Havoc. Standing by Miss Havoc is Glenn Ford who portrayed Ben Hogan in this picture. The Isotta was also used in M.G.M.'s picture "Mr. Imperium" with Ezio Pinza and Lana Turner.

Its body is by Castagna, and is notable not only for its fine flowing lines and general patrician air, but for the wide doors which when open give access to both front and rear seats. The tool box built into the running board is another feature of this classic car, which has a right-hand drive. The engine is over 7 litres displacement, and its 8 cylinders give it 135 hp.

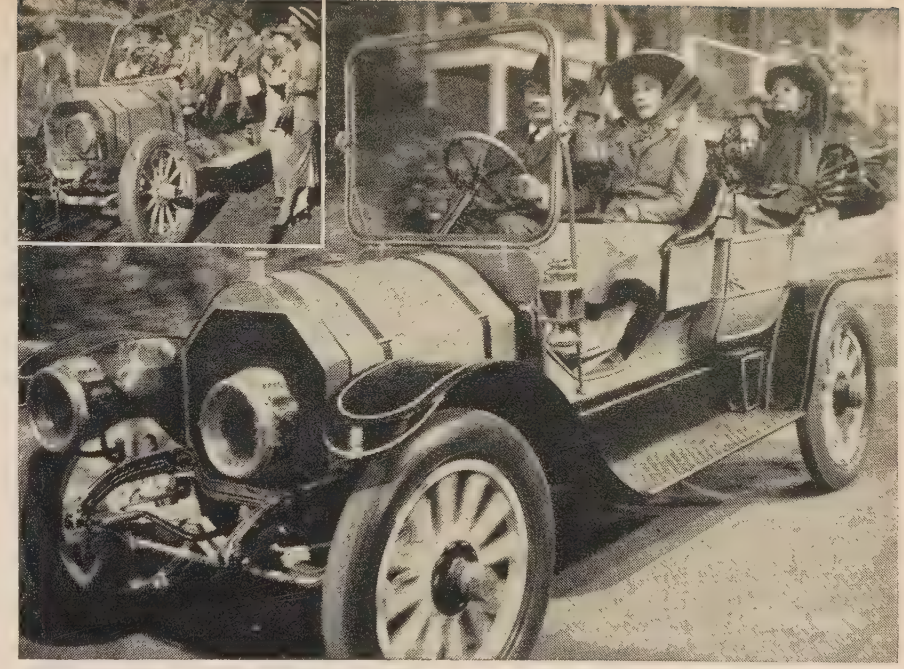


PHOTO COURTESY UNIVERSAL-INTERNATIONAL PHOTO COURTESY R.K.O. RADIO PICTURES

The same car, as used in different pictures. In "I Remember Mama," the 1908 Mitchell was immaculate. Not so in Abbott and Costello's "Comin' Round the Mountain" (inset).

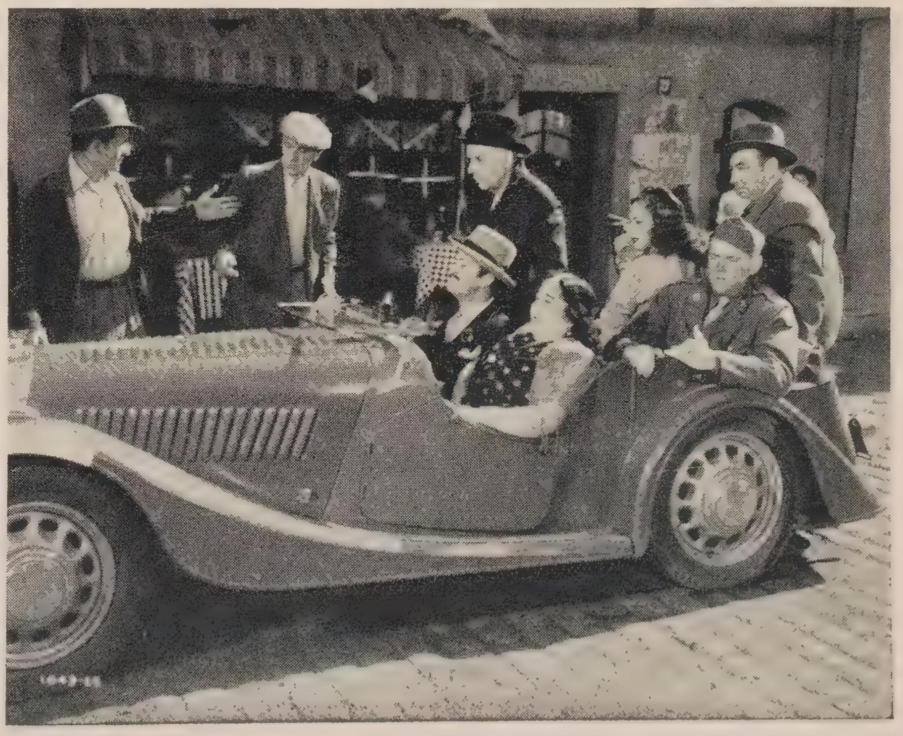
While the new Morgan 2 seater has had wide publicity in this country since the war's end, how many of you have seen a Morgan 4 seater? And more particularly one with six people in it? This fine little British sports car was rented to Universal-International for its production "Up Front" and is seen here riding low on its springs with Tom Ewell, Marina Berti and David Wayne wedged into the rear seat. It is a 1938 model, and its fully louvered hood is standard.

The Daimler, seen here in a blinding rainstorm, is one of the smaller models and cost considerably less than the $17,000 job belonging to Peter Satori of Pasadena (which *Road and Track* recently had the pleasure of testing), but it is a fine quality car thruout. It is equipped with a Wilson pre-selector gearbox and is a pleasure to drive. Note the lines of the radiator shell which, like Rolls Royce, have remained constant down thru the years. This car, a 1939 6 cylinder 2½ liter model, was used by Universal-International for "Bonaventure" and the gentleman with the flashlight in the flash flood is Gavin Muir. Like the other cars shown in this article, it is owned by Pacific Auto Rentals.

(Continued next month)

The Morgan, below, was seen in "Up Front." It is a rarely seen four-seater model, here loaded down with six people. It has right-hand drive, folding windscreen, and louvered hood.

PHOTO COURTESY UNIVERSAL-INTERNATIONAL PICTURES



Above, the author in his partially completed sports car. —PHOTO BY JACK CAMPBELL

Building Your Own Sports Car

• An analysis of the problems involved •

By Charles G. Manning

Editor's Note

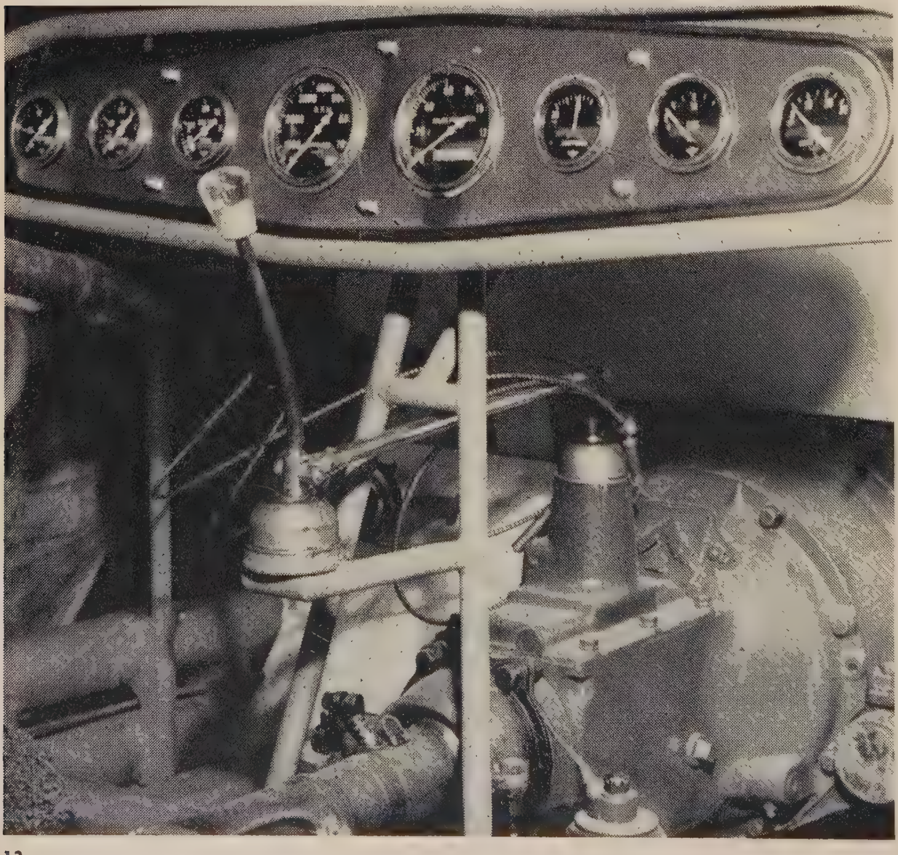
The author, a stress analyst for Douglas Aircraft, has made a hobby of the mathematical analysis of sports car cornering characteristics and is putting his theories to test by actually building a car. In this article, Mr. Manning breaks new ground insofar as published material is concerned by analyzing various types of suspensions and their net effect on cornering ability.

By taking a "standard" sports car and putting it into a "standard" corner, he computes the results of various suspension changes in such a manner that comparisons of changes can be made. Since the inside rear wheel does all the driving in a corner, and since this wheel inevitably tends to lift off the road surface, the problem simplifies to one of reducing this lifting tendency so that more horsepower or tractive effort can be transmitted.

The conclusion shows that by designing the front end to take more of the overturning moment, the inside rear wheel can be made to transmit more power. The author cites the Allard J.2 as representing close to the ultimate in cornering ability due to high roll center both front and rear. The appendix gives the derivation and solution of the mathematical approach, and many minor factors have been omitted in order to simplify the process. However, these "minor factors" were all carefully considered and proved "minor" before the simplification was used.—Tech. Ed.

With the large variety of truly excellent sports cars available, the question immediately arises: Why build one? There are several answers to this. Money, for one thing, because sports cars can be expensive. Then, too, there are those who, for some unknown reason, would rather build something of their own than buy it. So if you are somewhat of a hobbist, and if time is no object, then pull up a chair and let's see what we can dream up.

Below, sturdy tubular body bracing is also used to support instrument panel and shifting lever mechanism. —PHOTO BY CAMPBELL



First of all, we must remember one thing. All designs amount to a compromise. The car you build can have just the characteristics you want it to have. Details which you may consider unimportant (such as soft ride) may be somewhat neglected, while features you may think important (such as cornering) may be emphasized.

In this discussion, we are chiefly interested in handling qualities, which can be changed (and improved) for a total cost to you of $500 to $1000, if you discount your time.

We must remember that in a sports car, we have an engine, two people and four wheels to consider. Two of these four wheels must steer, and two must apply power. This suggests an infinite variety of combinations, some of which we may discard at the outset as being simply not feasible.

The sports car must steer from the front, if we are to avoid trouble. No rear steering setup has ever been successful—even theoretically. Also, the car we are considering shall employ a full differential, since a locked axle results in prohibitive tire wear during road racing. While a limited-slip differential solves many of the problems we shall face, the cost is too high and we want to keep our financial outlay down.

This leaves us four possible chassis layouts or arrangements. Let's look at their several advantages and disadvantages.

Basic Arrangements

TYPE I

Forward engine, rear-wheel drive

Advantages

a. rear seating position (better "feel")
b. even tire wear (steering front, power rear)
c. inexpensive to build

Disadvantages

a. difficulty of attaining 60% of weight on driving wheels
b. weight of driveshaft
c. suspension problems

TYPE II

Rear engine, rear-wheel drive

Advantages

a. easy weight distribution control
b. no drive shaft
c. even tire wear

Disadvantages

a. high driver skill required
b. cooling system problems
c. suspension problems
d. complicated gear-shift linkage

TYPE III

Forward engine, front-wheel drive

Advantages

a. less driver skill required
b. no suspension problems
c. no weight control problems (70% forward)
d. no drive shaft

Disadvantages

a. very uneven tire wear (power & steering on front wheels)
b. high cost of front wheel drive mechanism
c. steering lock reduced
d. complicated gearshift linkage

TYPE IV

Rear engine, front-wheel drive

Advantages

none

Arrangement Choice

Were we to list all the above items in order of importance—the degree of driver skill required would unquestionably be first.

The rear engine car must always have either a driver position too far forward or too large a percent of the weight on the rear wheels. Either—for the amateur driver—would be equally disastrous.

With the forward seating position, the driver has little forewarning when the tail-end starts to slide and therefore cannot "correct" quickly enough. Cornering vigorously becomes a series of erratic broadslides interspersed with periods when all four wheels are tracking. All too often the final result is "losing it completely" or ending up in the hay bales. When 60% or more of the weight is on the rear wheels, very violent "tail chasing" results. If, for any reason, the tail of the car moves out to a broadsliding angle of greater than 10 or 15°—you have "lost it," and any amount of throttle, brakes or steering won't help. In short, few amateur drivers are able to corner successfully in a rear-engined car.

Suspension

The next most important item is suspension. The requirements of suspension in order of their importance are: correct roll center height, front and rear; correct steering geometry during **both** bounce and turn; and minimum unsprung weight.

The **roll center** of a suspension is defined as the point about which the sprung weight rolls when the car is accelerating sideways (as in a turn). The **roll axis** is a line joining the roll centers of the front and rear suspension and is the axis about which the body rolls. Correct steering geometry during a turn specifies all four wheels tracking arcs about a common center. Correct steering geometry during bounce specifies no change in caster, camber, toe-in, tread, wheelbase, or roll center. The ratio of sprung to unsprung weight for a really smooth ride will approach 20-1. Most American cars vary between 10-1 and 20-1. For our design, any ratio of less than 4-1 should be considered unacceptable as even moderately rough roads will set up axle tramp in spite of adequate damping from the shocks.

To illustrate the importance of the position of the roll axis, let us run thru a few examples based on the Jaguar XK-120 weight, center of gravity location, and other factors.

1. For comparison, let us first use accepted American passenger car roll stiffness, front and rear, with Jaguar suspension geometry.
2. Car No. 2 will be the Jaguar XK-120 and we are indebted to **Automobile Engineer** for the spring rates and geometry.
3. Replacing the XK parallel, a frame front suspension with a half-swing front axle (or a solid F.A.) and removing the roll bar gives us our third example.
4. Adding the XK roll bar to example #3 gives us our fourth case.
5. Adding a DeDion rear end to example #4 will be the fifth type.

The following table shows the relative ability of each car to use its available power in a turn and during straight-line acceleration. The first column identifies the type as itemized above. The second column shows the distance gained on the first car in the 90° right turn described in the appendix. The third column shows horsepower required to accomplish this gain. The fourth column shows initial thrust possible for a standing-start straight-line acceleration.

Car	Distance gained Over Car #1	HP required	Initial thrust straight-line acceleration—lbs
1	0	33.5	1830
2	12.2	49.5	1712
3	13.6	51.2	1625
4	15.3	53.6	1712
5	31.8	75.0	2030

Inspection of the appendices* will show that, in a sense, the requirements of a suspension for cornering under power and for maximum straight-line acceleration are mutually contradictory. That is, for cornering the suspension should be very stiff in roll at the front. Best straight-line acceleration is accomplished, however, by having all the roll stiffness at the rear. Further inspection of the appendix, however, shows that during cornering the couple on either front or rear suspension is made up of two separate parts . . . that part which is proportional to C.G. height above the roll axis and the roll stiffness of the springing, and that part which is due to the side load on the tires multiplied by the distance from the ground to the roll center of the suspension. Also, that during straight-line acceleration the load variation on the tires is a function only of the roll stiffness front and rear.

Therefore, to have most of the total overturning couple carried by the front suspension while in a turn, and also to have most of the engine torque cancelled by the rear suspension during straight-line acceleration, we must make the term $F_r H_r$ (side force rear x roll center height rear) as small as practical. As F_f and F_r are determined by the weight distributed front and rear and must always be very nearly equal (nearly equal weight on front and rear wheels), it becomes evident that the car whose roll axis more nearly approaches an upward slope from rear to front (higher in the front than in the rear) has made the best use of the suspension in building a competition machine.

Probably the foremost question in the reader's mind at this stage is, "What good is ability to apply power in a turn if the solid front axle refuses to stick to the road?" First of all, the half swing front axle, which has an even higher roll center than the solid axle, need make no apologies for its ability to keep wheel to ground in a rough corner and is, in fact, considerably better from this standpoint than other types (Ref. letter to "Sports Car" magazine from Allard Motor Car Co. as reported in Aug. **Road and Track**). Second—if you cannot have a half swing, you must decide how rough the corners you expect to run around will be. You may then decide that, after all, 95% of the corners in all road races are just about dead smooth and the ones that are not may be taken slower and the solid axle front suspension still comes out with the best lap time.

It should be noted here that if a limited-slip differential (for cornering) were mounted in a sprung center-section type rear suspension (for straight-line acceleration), all of the foregoing would disintegrate into a discussion of relative tire wear rates, and no difference in performance could be shown.

Therefore, if you must have an independent front suspension (not half swing), your design should include a full independent rear suspension of the same type, or a DeDion rear suspension with a limited-slip differential, if you intend to corner and accelerate against cars having solid (or half swing) axles front and rear, but with no limited-slip differential. Note that the suspension of the J.2 Allard, with its half swing front suspension and DeDion rear, seems to be just about optimum.

Springs and Shocks

While talking of suspensions, we should also decide on the type and spring rate of the springing and kind of damping.

First we should note that the mechanism used to give the desired spring rate matters little. There is no theoretical advantage, one to the other, of leaf springs, coil springs, torsion bars, air cylinders, or the like. There are, however, some practical advantages and disadvantages of each.

For the very smoothest type of ride our springing must have a very minimum of hysteresis (or friction) loss and, from this standpoint, either the coil and torsion bar spring, combined with a velocity type hydraulic shock, is best. However, for a car that will be driven over rough roads at high speeds, in addition to velocity damping, we must also have a dry friction breakaway type damping. The leaf spring comes with this feature built in. Therefore, if you must have a torsion spring, you must have twice as many shocks . . . one friction type and one hydraulic type for each wheel.

The absolute value of the spring rate used is not at all critical. A soft spring requires a larger shock absorber than a stiff spring. If your spring rate comes out such that increasing the weight on one wheel by 50% gives a one to two inch deflection—you are close enough. Or $S_s = 125$ to 250#/in. per wheel.

(Continued next month)

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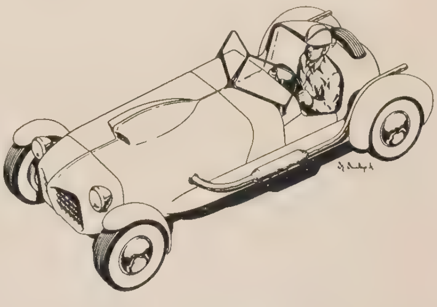
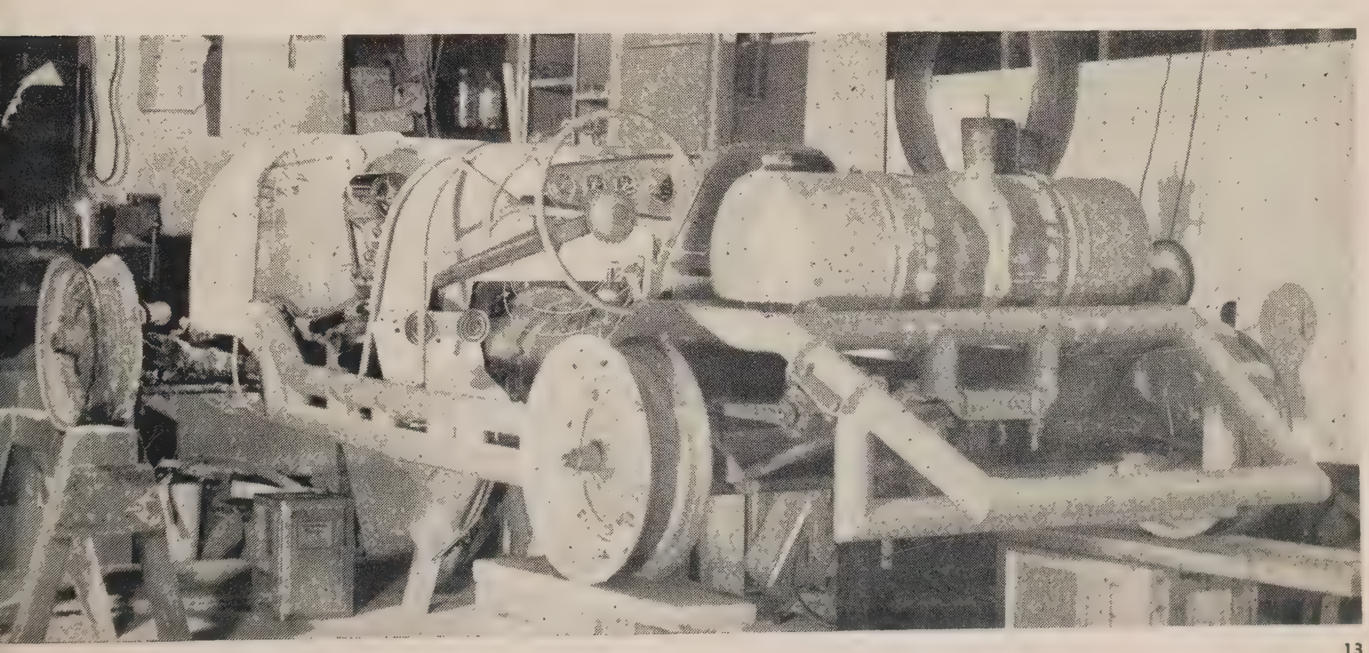
*Appendix will appear at conclusion of article next month.



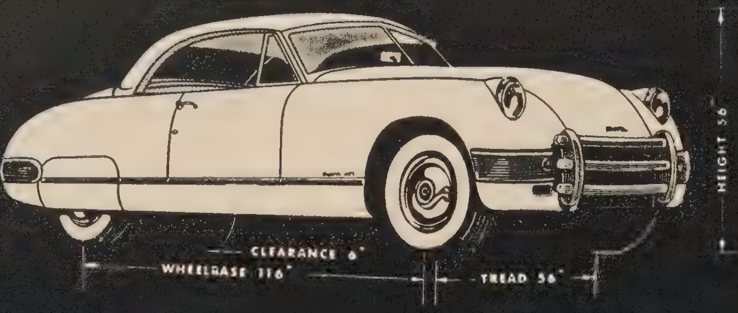
Above, sketch of Manning car when complete.

Below, the first stage of body construction.



ROAD and TRACK ROAD TEST No. A-2-51

Make: Muntz **Model: Jet**

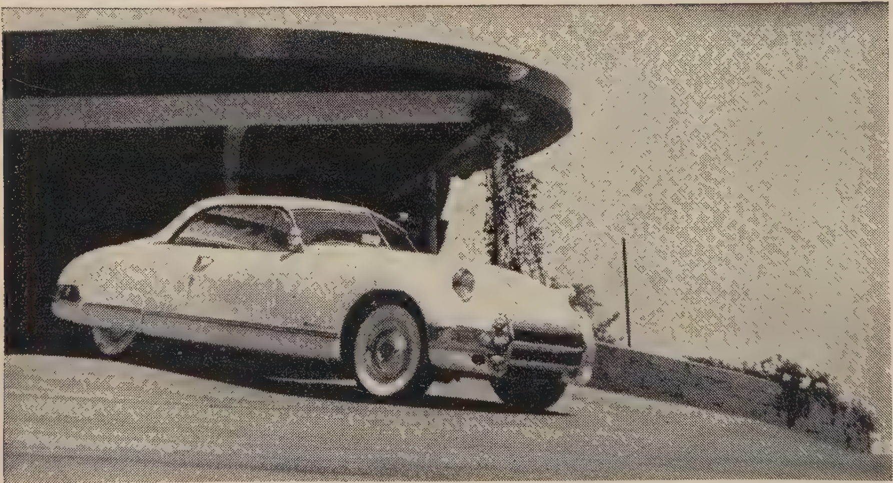


Price: $5250 f.o.b. factory
Horsepower: 152 at 3600 rpm
Displacement: 337 cu. in.
Bore: 3.50 in.
Stroke: 4.38 in.

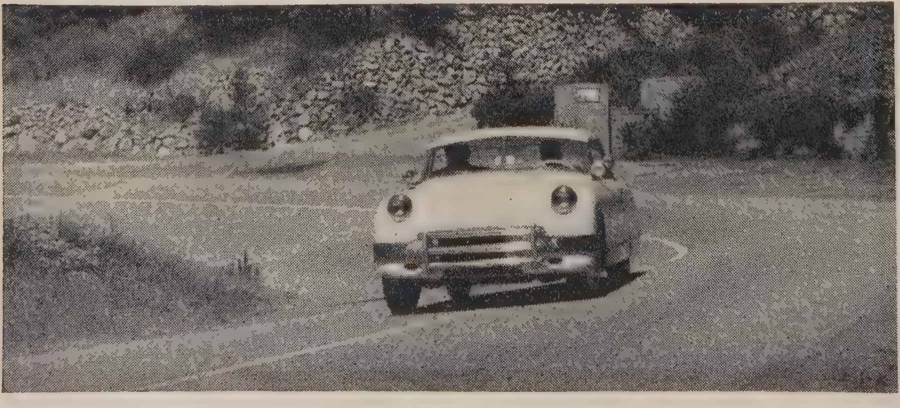
Dry Weight: 3780 lbs.
Overall length: 186 in.
Overall width: 71 in.
Front seat width: individual
Rear seat width: individual

PERFORMANCE

ACCELERATION		MAX. SPEED	
Standing ¼ mile	18.8 sec.	Flying ¼ mile	
0-50 mph	9.0 sec.	Upwind	107.1 mph
0-60 mph	12.3 sec.	Downwind	108.8 mph
10-60 mph (3rd gear)	Not possible (Hydramatic)	Average	108.1 mph



Above, the Muntz shows considerable resemblance to the original Kurtis sports car from which it has descended. The "hard-top" is removable, a feature offered by no other manufacturer.



The low C. G. of the Muntz is evident in the small amount of roll, even when cornering "all-out." Note the air intake thru the bars of the bumper and high-positioned headlights.

HERE'S THE ROAD TEST YOU'VE BEEN ASKING FOR— THE MUNTZ JET . . .

Most confusing have been the rumors surrounding the Muntz Jet. Fact and fancy, truth and fiction have infiltrated the reports given to the public. These stories have been thought provoking on one hand, and utterly ridiculous on the other. Nation-wide releases have spoken blandly of 0-80 in six seconds and truly astronomical top speed runs.

Ordinarily, *Road and Track* is inclined to laugh off this type of ballyhoo along with the rest of the sports car world, but this time there seems to be more to the situation than just hokum. First of all, the Muntz is not far removed from the Kurtis-Kraft (as which it originally started life), and Frank Kurtis, who gained fame for his highly functional Indianapolis Speedway creations, is well-known as a designer. The Muntz has been changed very little from the 2-seater Kurtis, tho it has been lengthened into a four-passenger, removable-top sedan. More weight has been added in the process and Muntz is using the potent 152 hp Lincoln V-8 instead of the full-race Mercury which Kurtis used to run thru the measured ¼ mile at better than 140 mph (burning alcohol). Fundamentally, however, the car remains the same. Then, too, Sam Hanks, Muntz' right hand man in the project, is highly respected by *Road and Track,* not only for his successful career as a driver, but for being the type of winner (1941 and 1949 AAA Midget Champion) who isn't afraid to get his hands dirty in the engine compartment. Sam knows cars and when he tells us the Jet has a lot of promise, we get curious. To top it all off, there's Earl "Madman" Muntz himself; a real "leadfoot" driver and an enthusiastic MG and Jaguar XK-120 owner.

So *Road and Track* decided to put the car thru its paces. In all, three cars were tested. The first had the ohv Cadillac engine because none of the Lincoln-powered Jets was available on the Coast. The Cad we tried was tired . . . 25,000 miles of hard driving and demonstrating had taken more than the edge off its performance, so Sam Hanks turned up the next day with a practically new Muntz, but still powered by a Cadillac. The staff drove it and was impressed by the performance, but the test had no value until the regular production job could be tried out.

Finally, by a stroke of good fortune, a regular line Muntz with Lincoln engine was driven out from the East and Sam rushed it over to us. We kept it several days and the low, blue car attracted much comment wherever we went.

The Muntz Jet was not intended as a true **sports car** but rather as a deluxe high-speed convertible touring car in the American manner. As such, it offers the fastest acceleration and the highest top speed of any American-built car available from the salesroom floor today. For those who wish to travel rapidly, carry five passengers, be protected from the weather, and who have the necessary change ($5,250 fob Evanston) . . . this is the car!

When we drove the Muntz to the *Road and Track* test area, we were accompanied by two Jaguar XK-120s whose owners were anxious to compare figures. The upshot of the day's trials was a victory for Jaguar not only in acceleration but in top speed. *However,* the victory was not as marked as one would have supposed, considering the difference in weight of the two cars (the Muntz outweighs the Jaguar by 1000 pounds). Both Jaguar owners were amazed to find that going thru the mountains, the Muntz rolled less than their own sports cars. One of these owners, a real enthusiast, was so impressed with the Muntz that he has placed an order for two . . . one for his wife and the other (with a standard transmission and overdrive) to be driven in the Mexican Road Race this fall.

With Hydramatic (as it is now equipped), the Muntz has a 3.31 rear end. By using the available standard Lincoln overdrive transmission and 4.10 rear end with overall ratio of 2.87, the top speed is a theoretical 124 mph.

Something more could be desired in the steering ratio of the Muntz. One has to turn the wheel much too far to navigate a corner in true sports fashion. However, as a result of this finding, Hanks is altering the pitman arm length on subsequent models which will give the driver less work to do and more facility in correcting or recovering from skids.

The interior is upholstered attractively in plastic, the individual front seats being separated by a very large transmission "hump" which is surmounted by a spacious hinged compartment and radio. Our British brethren will probably be horrified to find an insulated compartment (by the rear seat) which can be filled with ice and bottled refreshments. (In a sports car? Really, old fellow!) The rear seat is not comparable, comfort-wise, to the average sedan. It has too little padding and is uncomfortable on a really long trip.

However, the Muntz was not designed to compete for the family trade. It is a distinctly high performance "semi-sports" car offering better weather protection and more luggage and passenger space than most sports cars.

For effortless cruising at high speeds, the Muntz would be hard to beat. The excellent seating position, combined with right and left arm rests, makes this an ideal car for the person accustomed to piling up high daily mileage totals. The rugged Lincoln engine assures trouble-free performance at high throttle settings. It will be remembered that the Lincoln won this year's Mobiloil Economy Run.

In the normal passenger car the Hydromatic unit heats considerably, but the heat is successfully dispersed. Not so in the case of the Jet. On the contrary, the calf of the drivers right leg, which is apt to rest against the gear box, becomes uncomfortably warm. Some form of insulation would help.

In the original cars, head room was a problem . . . even for the driver and passenger of average height. The production model, however, has several inches added to the height of the windows and windshield, which provides for a comfortable interior height. Tho this adds the inconvenience of extra glare when driving into the sun (because of the vast windshield area) the problem could be overcome by the addition of inside sun visors.

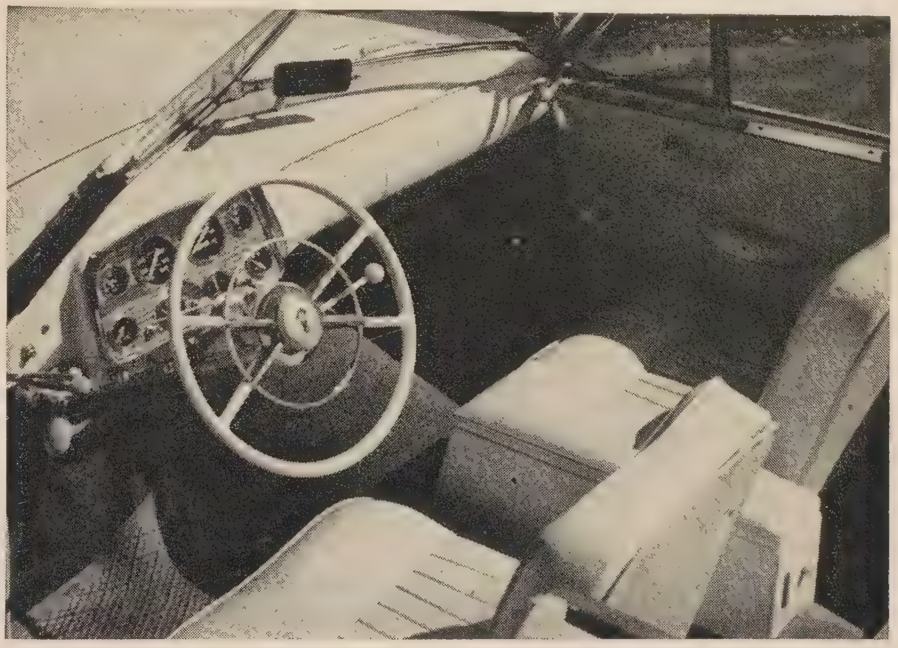
Of great interest to enthusiasts is the fact that Muntz, Cord and Hanks are quite serious in their plans to build up a competition version for sports car events. We have heard some quite authentic rumors that Muntz himself will be driving the car in future races and *that* sounds like news.

The Muntz is the only current American effort in the field and as such deserves a lot of support from American enthusiasts. There isn't any reason why we cannot eventually produce, on these shores, something equal to Europe's best. Here is a step in the right direction . . . a trail which is leading to a real production American sports car. It is *Road and Track's* belief that Earl Muntz deserves a rousing round of applause.

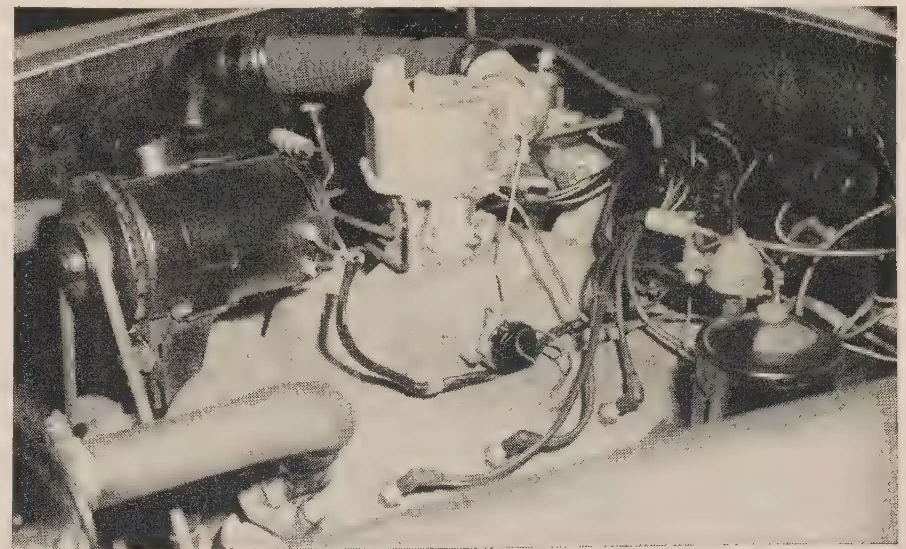
Notes and Comments

The seating position is very low . . . one actually sits down in the frame.

Instrument panel is very complete, one of the best we have yet seen. However, gas gauge on first car was indicating ¼ full when ye Ed. heard the "now empty" cough-cough . . . walked four miles in pitch dark. Each succeeding Muntz tested showed definite improvement and refinement (all over, not just the gas gauge). Design seemed particularly appealing to women . . . they raved over the interior trim (head liner is pleated—same material as seats). Vinylite-covered padded top should have long life. Color schemes are good and are well carried out. Inside door handles and window winders are awkwardly located. An excellent safety feature is the padded, cutaway dash on the passenger's side. The Jet is first production car to actually use space between bumper bars for radiator air inlet . . . excellent parking protection. Everyone was impressed by the terrific acceleration . . . WHAM, BAM, and you're long gone!



Above, the upholstery of the Muntz is smooth, washable Vinylite. Note the padded dash. Instrument panel is unusually complete and includes a tachometer and vacuum gauge.



The engine, a stock 152 hp Lincoln V-8, provides ample power for most purposes. A "hop-up" kit is available for those who wish additional top speed and quicker acceleration.

During high speed runs, the Muntz "ran out of gear" at 108 mph and held the road beautifully thru a corner at 100-plus mph. Speed runs were made with Lincoln powered version.

83

miles on one gallon!

MORRIS MINOR SETS AN ASTONISHING MARK IN TEST RUN RELIABILITY TRIAL

JANUARY, 1951

At a recent mystery event held by Motor Sports Club of America one of the most astonishing performances of economical gas consumption was turned in by a stock Morris Minor Sedan. Conducted on a bright Sunday afternoon in May 1951, the event consisted of a carefully administered reliability trial over a pre-determined course, which wound its way over 50 miles of Connecticut and New York countryside. The gas tank of each car was filled to capacity at the start of the event; all gas tanks and hood openings were sealed by inspectors.

Competitors were allowed to drive as slowly as they liked; time was not a factor, coasting down hills and turning off the ignition switch to save gas was permitted. The car able to negotiate the prescribed course most economically would be the winner.

Penalties for failure to conform exactly to the course or failure to pass through all secret checking points on the road, or tampering with any hood seals or gas tank caps would, of course, result in immediate disqualification.

Under these conditions a 2 door Morris Minor Sedan with over 10,000 on the clock, carrying 2 adults and a 100 lb. Great Dane puppy averaged 83.33 miles per gallon to win the test hands down.

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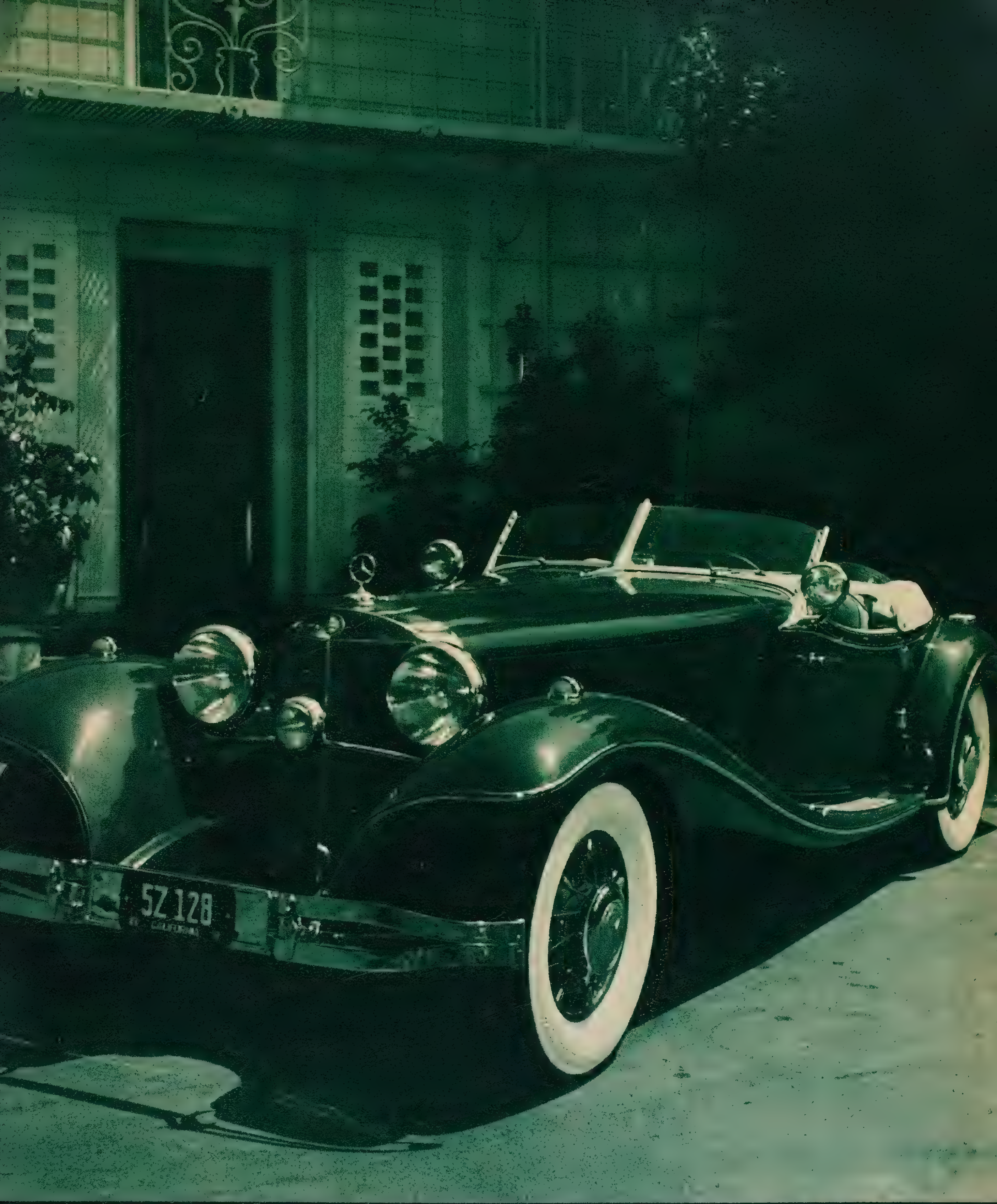
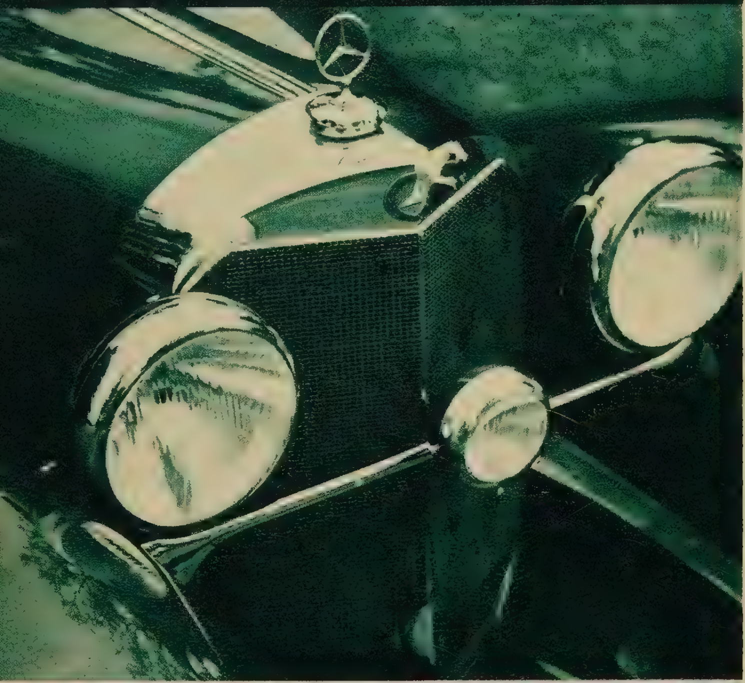


40 K Mercedes - Benz

Salon

540 K MERCEDES



When the conversation turns to automotive history's fantastic creations . . . Duesenberg, Bugatti, Hispano-Suiza, to mention just a few . . . the name Mercedes-Benz inevitably crops up with its quota of fact and legend.

Pictured here is the Mercedes-Benz Sports Roadster Type 540-K which was produced in Germany in 1937 and after being brought to this country was acquired in 1939 by Mr. Robert A. Day of Bel Air, California.

Mr. Day has maintained the car in virtually showroom condition and even tho it was kept in storage for the duration (while its owner was in the service), the great, gleaming, red monster runs today (with 40,000 miles on the "clock") as smoothly as it must have done nearly fifteen years ago.

In these days of small economical European automobiles, it is difficult to understand the psychology which created a market for this gargantuan "Merc." Be that as it may, the car enjoyed a great prestige and popularity in pre-war Europe. While only a handful were ever brought across the Atlantic, the 540-K was a much sought after item, particularly among the horsey set in the British Isles. Even now in the days of England's austerity, no one is greatly surprised to hear the roar of 180 supercharged horses, as these 5800 pound, 130 inch wheelbase giants careen madly down along the quiet hedge-rows, making the countryside a little less pastoral, to say the least.

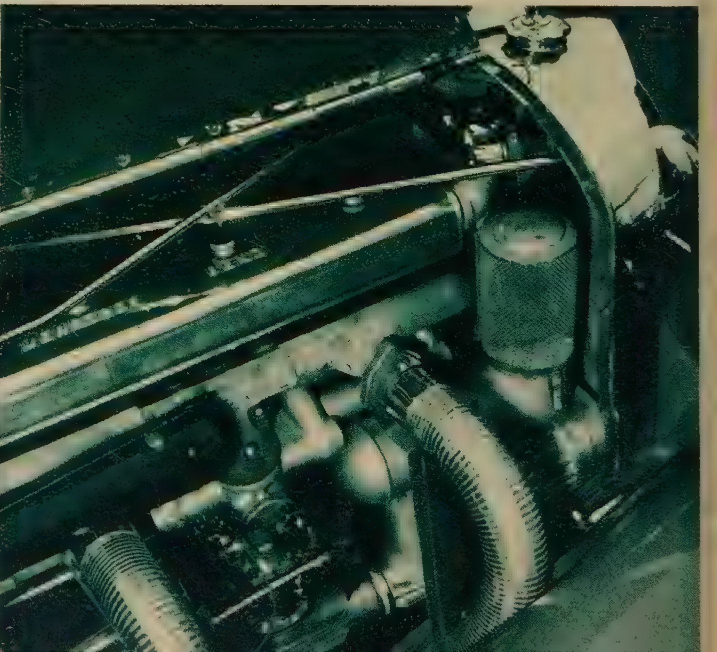
Mr. Day, the elegantly hirsute gentleman seated behind the controls in the upper right-hand picture, was generous enough to spend the better part of two weekends briefing ROAD and TRACK on this particular car's characteristics. We sat in, measured, crawled under, prodded and even drove the car, which left us not only delighted but honestly amazed.

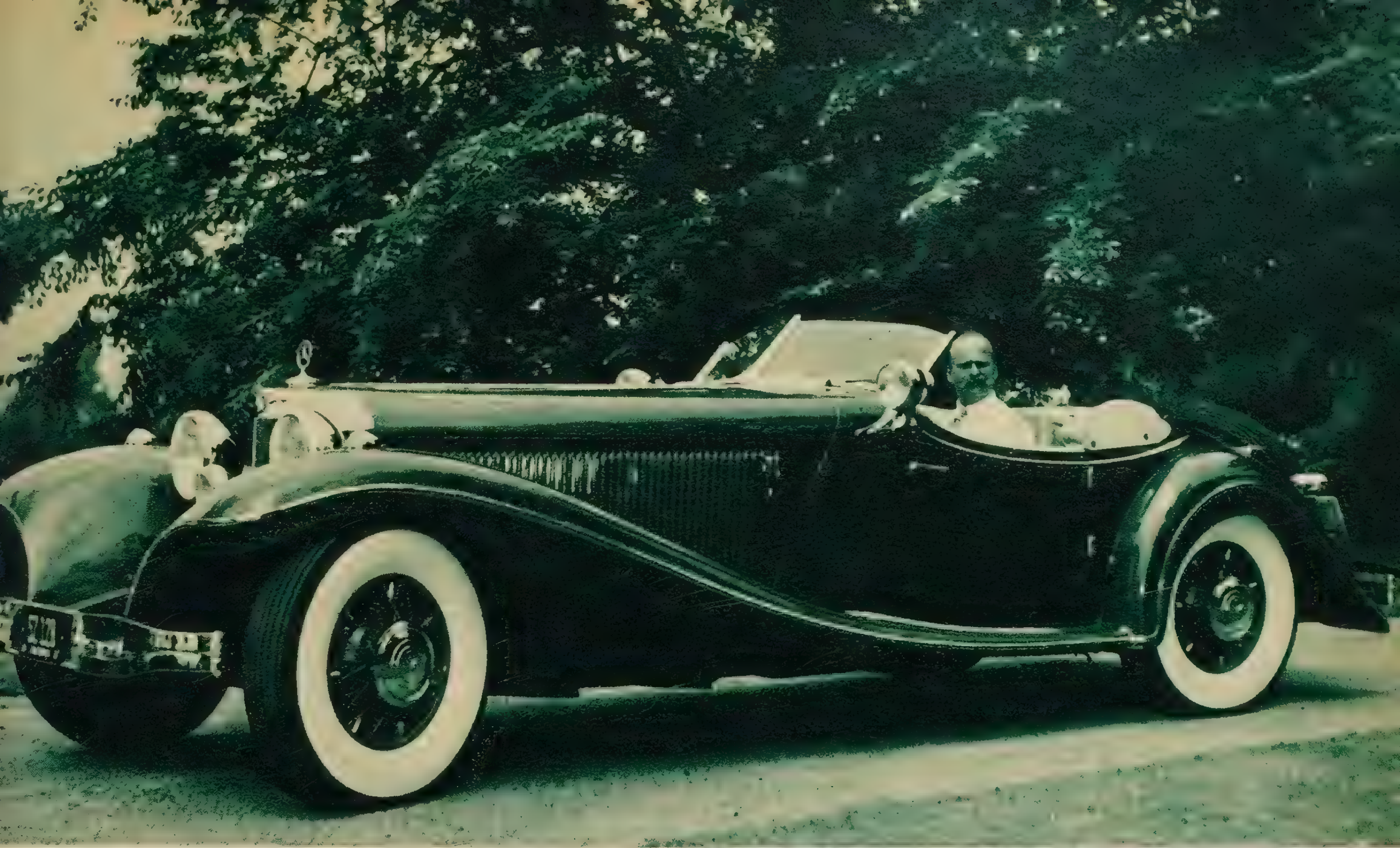
The powerplant is a 5400 cc, 8-in-line, each cylinder measuring 88 mm with a long stroke of 111 mm, as was the custom of the middle '30s. They liked a lot of middle range torque around the Daimler-Benz works way back then and this boat really had it. The engine only kicks over 2170 rpm at 62 mph, which makes the better-than-100 mph claim of the factory seem quite feasible when you consider the blower . . . which is a good idea. Let's consider the blower and how it's used.

Let's say you are moving along thru light traffic, the Merc muttering, grumbling and growling at being forced to loaf behind the sightseeing Jones family and their Olds 88. Suddenly you see an opening and a chance to improve your position a few car lengths. You grasp the steering wheel firmly (but you don't honk the horn. You won't *need* any horn when you find out what happens next) and you push the throttle to the floorboard. About this time all hell breaks loose. The engine which has been getting on quite reasonably with its 115 bhp suddenly gets a kick in the pants from the Roots blower (whose signal to get to work is the jamming of the accelerator to the floor). You find yourself surging by the Olds with all 180 horses screaming and roaring like mad, while Papa Jones, pale and frightened, stares transfixed, wondering how in the world he ever got on the railroad track anyway!

If you've never been within hearing distance of a great supercharger, you'll naturally wonder what the sound is like. When you were a kid, did you ever put your upper teeth against your lower lip and then half scream and half yell? Magnify this fifty times and you've got the sound of the Mercedes. Terrifying!

By now you've passed the Olds 88 and are rapidly overhauling the next car in line . . . a ton-and-a-half pick-up, whose rear bed is of an ideal height to clobber up the Mercedes radiator shell if you don't get to an immediate halt. So you reach for the brake pedal and with surprisingly little foot pressure the 540-K slows. No fuss, no skid . . . It doesn't dive or lurch It simply stops. It's all pretty amazing, but it's not done by



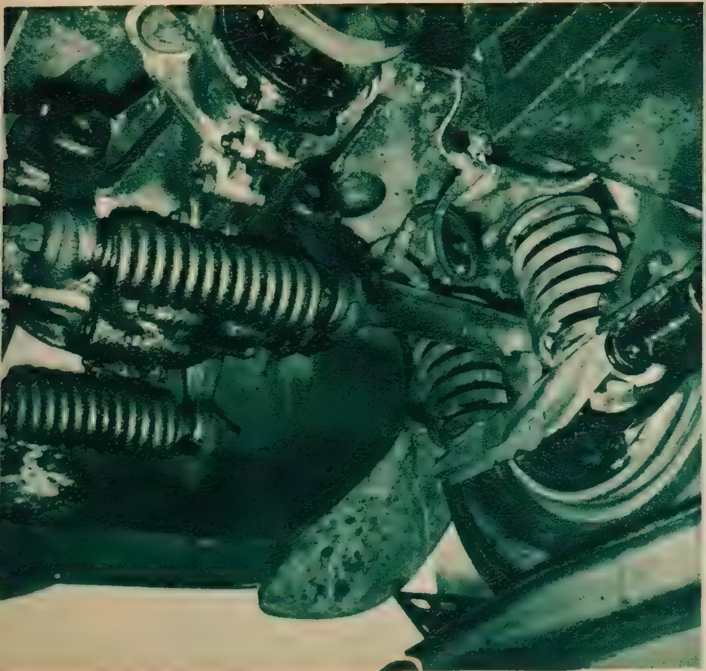


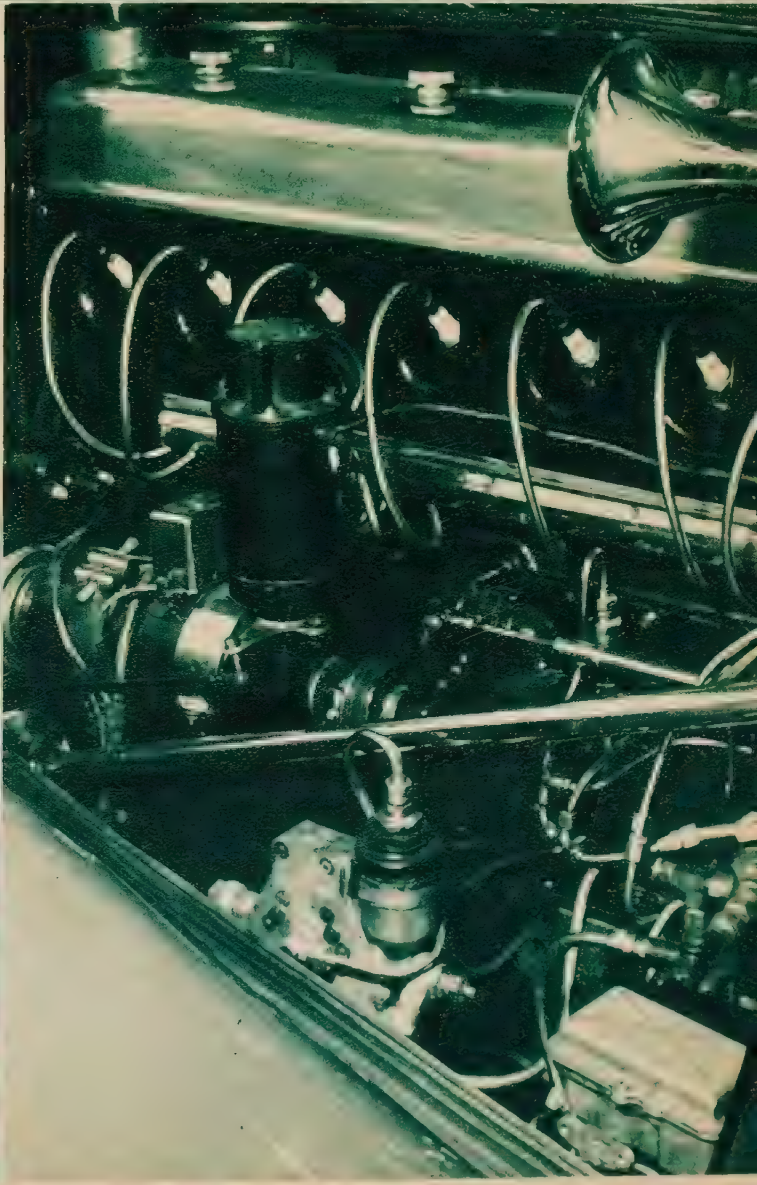
mirrors, it's a combination of vacuum-Servo-assisted hydraulic brakes and beautiful suspension.

Speaking of the suspension, the front is quite a nice independent setup with parallel A-arms attached to coil springs, while the rear is a highly complex, yet reliable swing axle, also sprung by coils. All this (designed before 1936, mind you) makes for unusual road-holding and absolutely accurate steering.

Added points which are of special interest: semi-automatic third and fourth gears (one need not use the clutch to shift back and forth between the two gears); the giant headers extending from the bonnet which have blistered the fingers of more than one skeptic who thought them phony; the keys for the doors, trunk, ignition and liquor locker behind the driver's seat, are like no other car keys you ever saw . . . rather they resemble something a medieval Teuton knight would use to unlock a drawbridge; the thirty gallon fuel tank, 12-14 quart oil capacity, and gas consumption of 9-10 mpg.

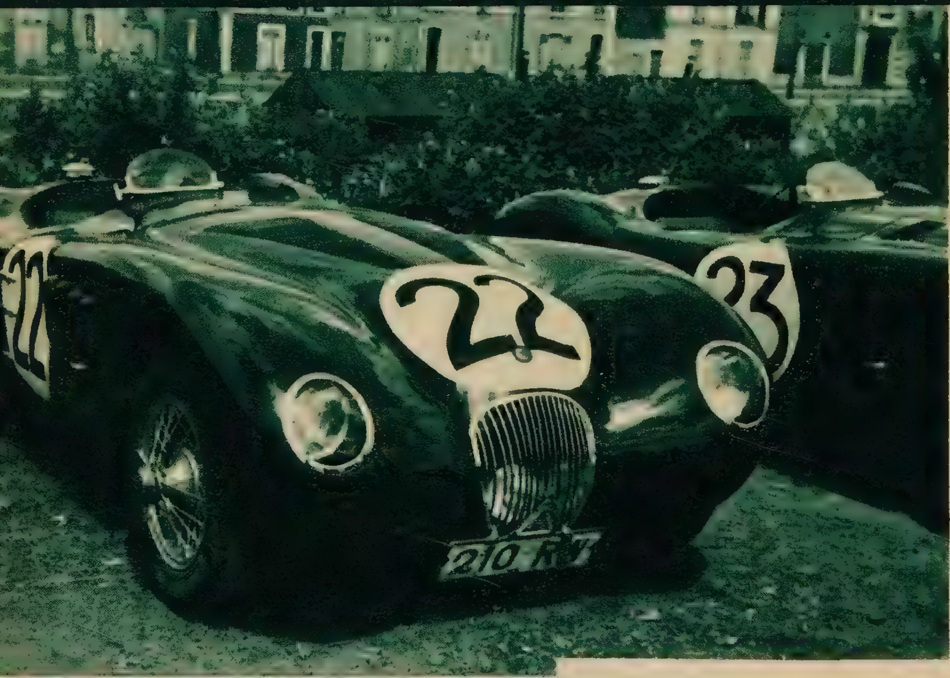
In short, the Mercedes-Benz 540-K Sports Roadster may be too rare and too high-powered a steed for most of us to maintain, but somehow it gives one a warm feeling to know that here in America such a car exists, well cared for, and in its original state.





THE 24 HOURS OF LE MANS

PHOTOS BY MILLANTA



by Corrado Millanta

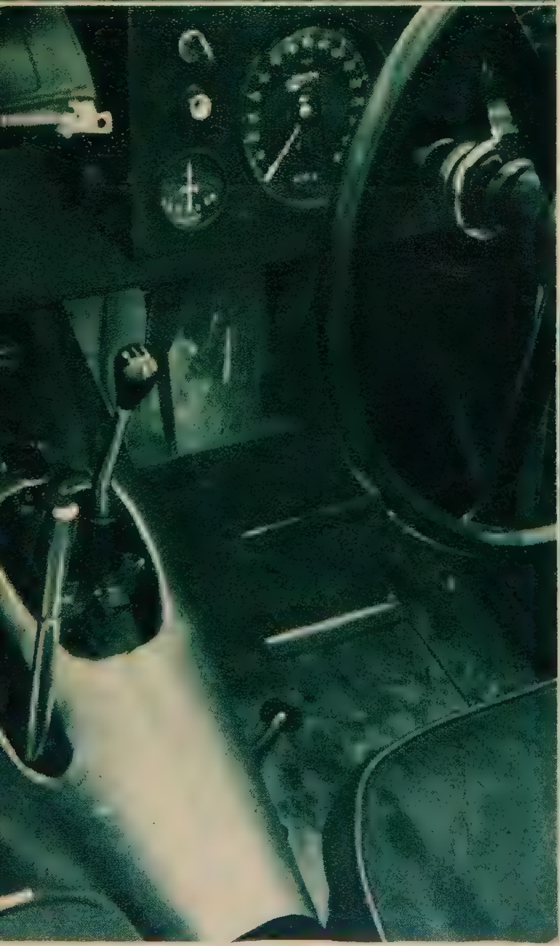
Every year since 1923, when it was first run, (with time out for the war and the 1936 competition which was not held), the 24-hour Le Mans race, on which is based the international rules for sports cars, has been called without exaggeration "The World's Championship of the Road."

The extremely strict rules of control and the careful inspection of the cars, before, during and after the race, make it the most interesting and singular sports car race on earth. In every respect, the "24 hours of Le Mans" is a miracle of organization and a work which deserves a very special place in history.

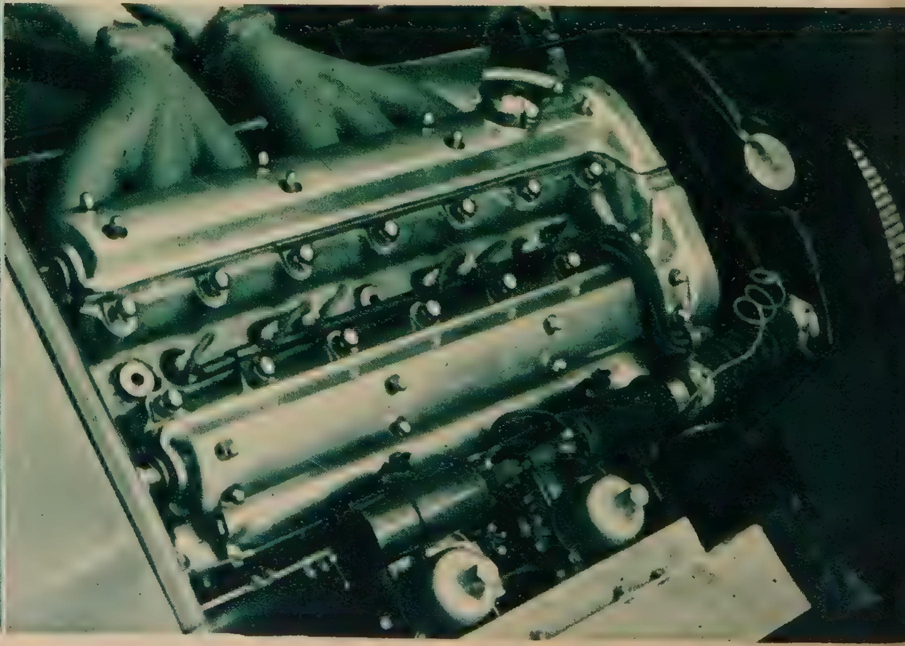
This laudatory opinion of the great French effort is written not by a Frenchman but by an Italian (who didn't take any sleep at all from the morning of the race until the morning *following* the race), so I must not be accused of favoritism.

Contrary to other practice, Le Mans gives no subscription prize (or prize money as you call it) and only 60 Vetture (cars) are allowed. This means that you have the finest sports cars available competing for victory.

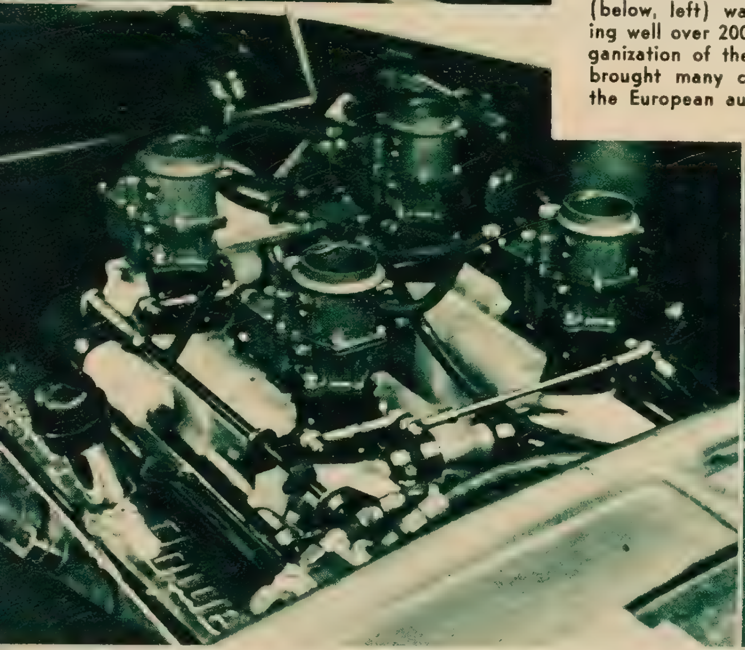
I arrived in Le Mans before the race on the Lancia Gran Turismo which was driven to 2nd place in the Mille Miglia by my friend Bracco, so I felt very closely connected to the events. It was also my grand privilege to live 24 hours in the pits, far from the press balcony. This I was allowed to do after signing some rule papers to protect the organizers in case some bad accident would happen to me. You can understand how my heart was with the Lancia during the race.



Above, the new competition Jaguar, type XK-120C. A truss-type tubular chassis is used, with light aluminum body, knock-off wire wheels, and torsion bar springs on the trailing arm rear suspension. At left, the cockpit of the XK-120C shows hand brake, shift lever, and 160 mph speedometer. Below, the super-tuned XK engine has modified camshafts, dual exhaust system, develops approximately 190 hp.



The Cunningham sports car, altho relatively large and heavy, was one of the fastest cars in the race. A four-carburetor Chrysler engine (below, left) was used, developing well over 200 hp. The fine organization of the American team brought many compliments from the European automotive experts.



This year the competition was very open. Talbot participated with her 4500 cc 6 cyl. twin ignition creation which is actually the Formula I Grand Prix car with a *biposto body and road equipment.* Jaguar put in line her competition type with 3440 cc, with a tubular frame and aluminum body. Allard fitted as usual the 5500 cc Cadillac engine, while Ferrari was not represented officially, instead private cars were entered by Chiron, Chinetti and other fine drivers.

Most exciting were the American Cunninghams and their group which were organized even to the smallest detail. Everyone could see that a fearful and determined attack was planned against the European cars.

We would expect some surprises from the splendid Aston-Martins (2500) and the Ferrari (2560 cc), while the custom-bodied Lancia, with her calm and innocent look, fell into the 2000 cc class along with the Mille Miglia and Le Mans Frazer Nashes and the Le Mans Ferrari.

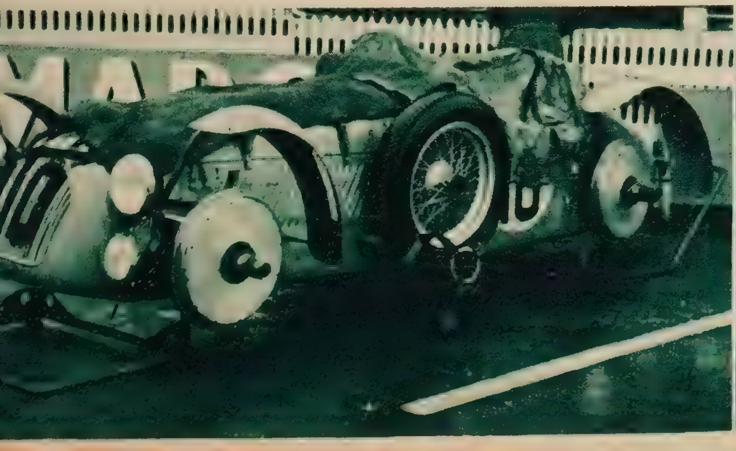
In the 1500 cc catagory the speedy Simcas seemed to have no opposers, while in the 1100 cc group there was only one Porsche (the other went off the road during practice) and one Simca. Very large was the 750 cc lot; Renaults, Dyna Panhards, Monopoles, etc.

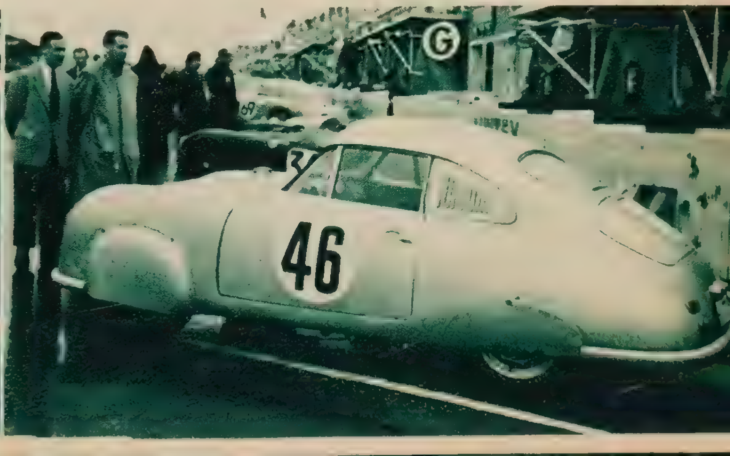
It was cloudy and the rain was about there, when the "go" signal was given at four o'clock in the afternoon. The cars were next to the pits while the drivers were lined up on the opposite side of the road, waiting to dash at the signal.

The Allards, because of their large displacement, were the first away . . . the Le Mans rules allowed them in the first row. They were followed by the other big cars. The third and last group was immediately behind, among which was Bracco's Lancia which had already passed several cars. Someone at the start left his car in first gear while using the starter button, thus gaining a few seconds, but I don't think this amounted to much in the twenty-four hours.

(Continued on page 34)

The 4500 cc Talbots (below, left) were actually Formula I Grand Prix cars, with sufficient body and equipment modifications to meet regulations. The Porche (below, right) won its class, and showed remarkable speed, as a result of careful aerodynamic design.



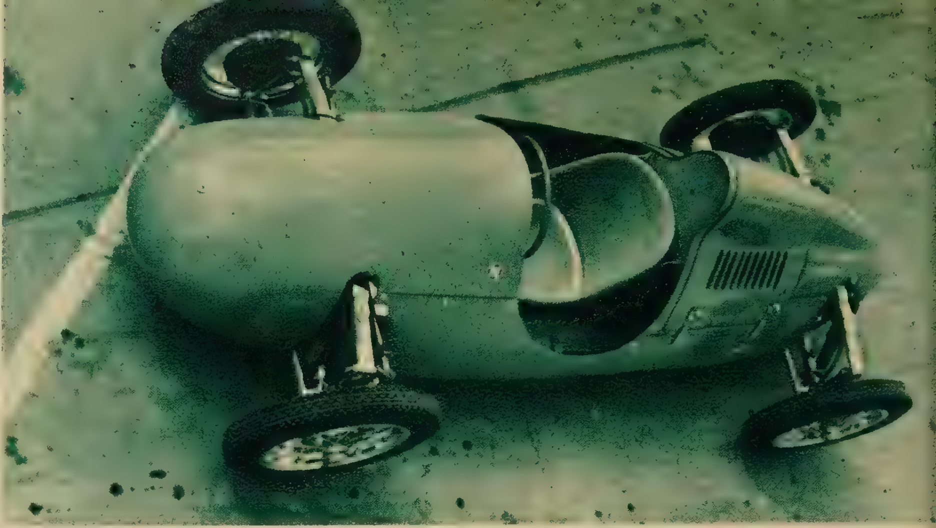


VOLPINI Formula 3 Details

by Corrado Millanta

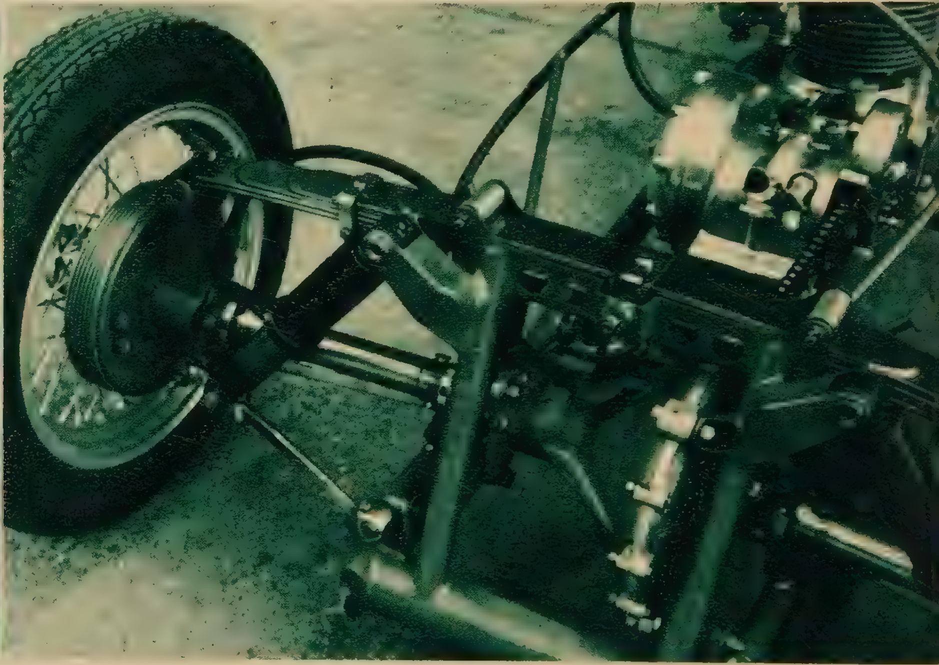
Last winter, Mr. Volpini of Milano, already known for his excellent 1100 cc sports-race cars, started to build a small series of interesting F.3 cars, assisted by the designer Arzani, who was a collaborator in the design of the Milan G.P. F.1 car (June *Road and Track*).

These small cars, carrying the builder's name, "VOLPINI," debuted at Genoa this year, where they made an excellent impression even if they didn't finish the race because of mechanical trouble. In fact, one Volpini driven by Bonetto led the race for



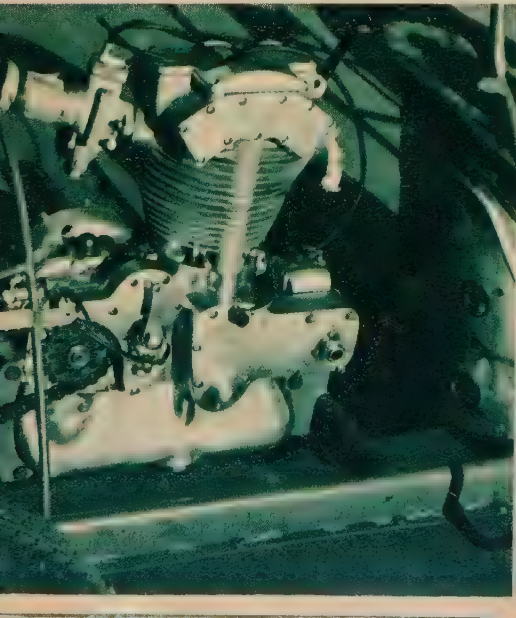
Above, the completed Volpini car. Note the clean body work, bucket-type seat. Below, the very interesting rear drive and suspension of this car. Note the differential housing.

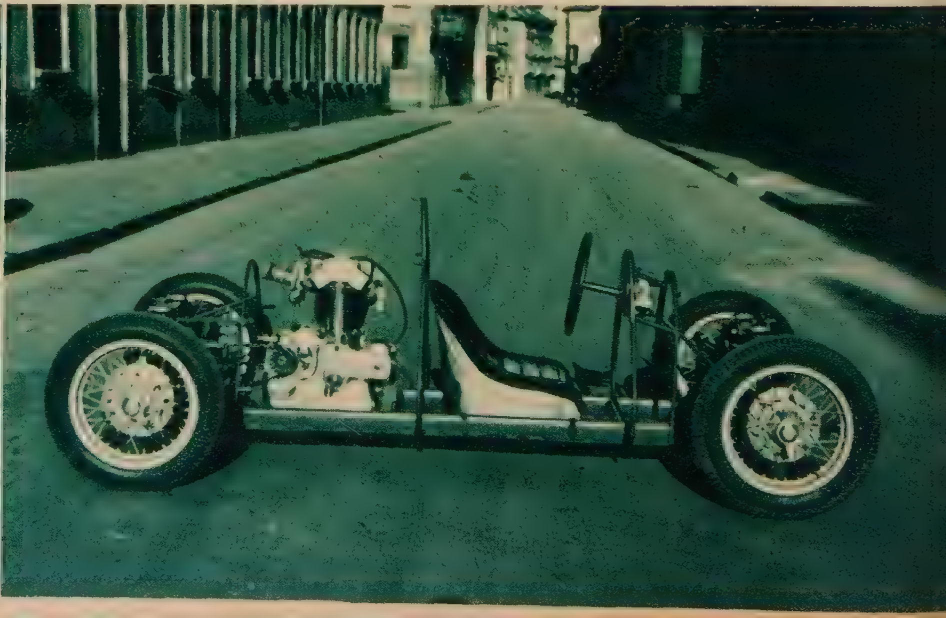
Below, the side-mounted fuel tank of the Volpini. C. G. position remains unchanged.



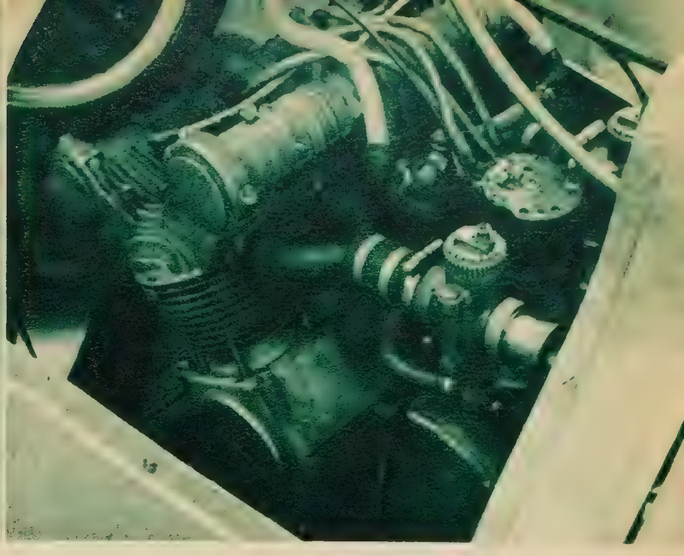
Below, the Gilera type Saturno engine mounted on the Volpini. It develops 44 hp.

Below, the Volpini chassis. Note the Borrani wire wheels; clean, light design of oval tube frame. Note the fore-and-aft placement of driver and engine, and low-seating position.





Above, the new experimental model with 4 cylinder Gilera engine. Only slight chassis and body changes to accommodate engine.



Above, the Gilera 4 cylinder engine as installed. Develops approximately 50 hp. Below, the bare chassis and suspension. Weight of this type chassis is very low, yet strength is high.

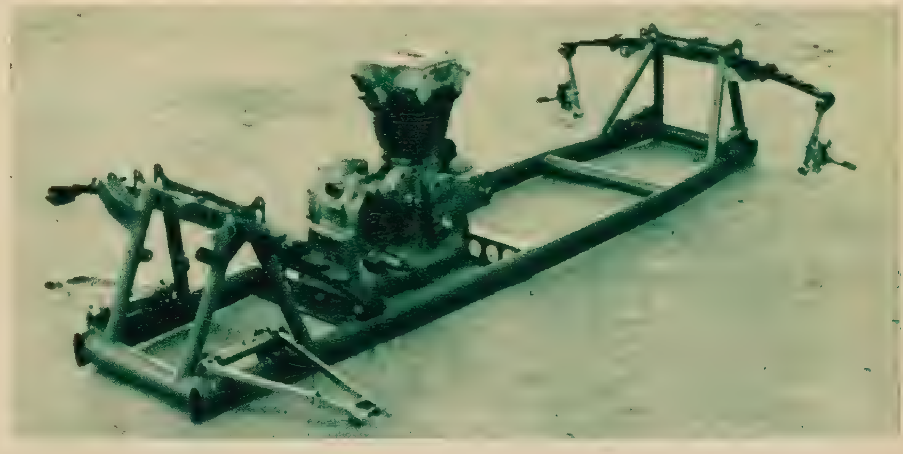
a few laps, preceding the Coopers, the Kiefts and the J.B.S.s, which are the best British F.3 cars; while the other two were further behind.

The Volpini chassis is made of oval tubing, with transverse leaf springs, ifs and irs. A single cylinder Gilera 500 cc engine, type "Saturno," is used, driving by single chain. It is worthy to note the differential, which most other F.3 cars do not have. We find this really important, even if it makes the car a little bit heavier. The weight of these small cars is watched in every single detail; so much so as to appear even exaggerated. Look, for instance, at the photograph showing the half axles and their U-joints, to have an idea of this very fine work.

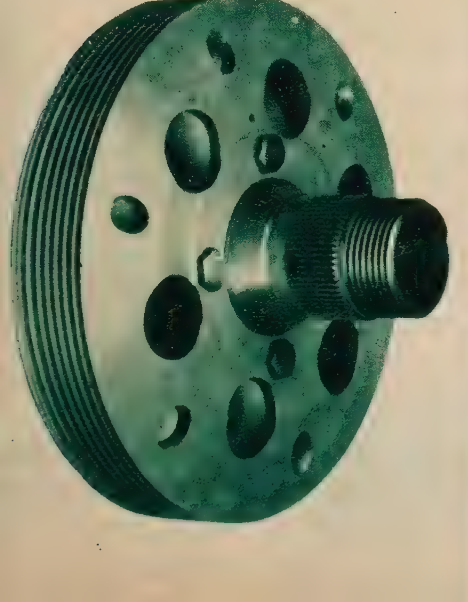
The 500 cc Gilera engine (84 x 90 mm bore and stroke) used in the Volpini is built by the Gilera Motorcycle Co., and produces 44 hp at 6000 rpm. It is specially built by Gilera and not bought outside and remodeled. The weight of the complete car is 265 kg (588 lb). This gives 6 kg/hp, a very good weight/power ratio, especially if we consider that the Cisitalia 1100 cc, type D-46 of 1948, had a ratio of 6.4 kg/hp.

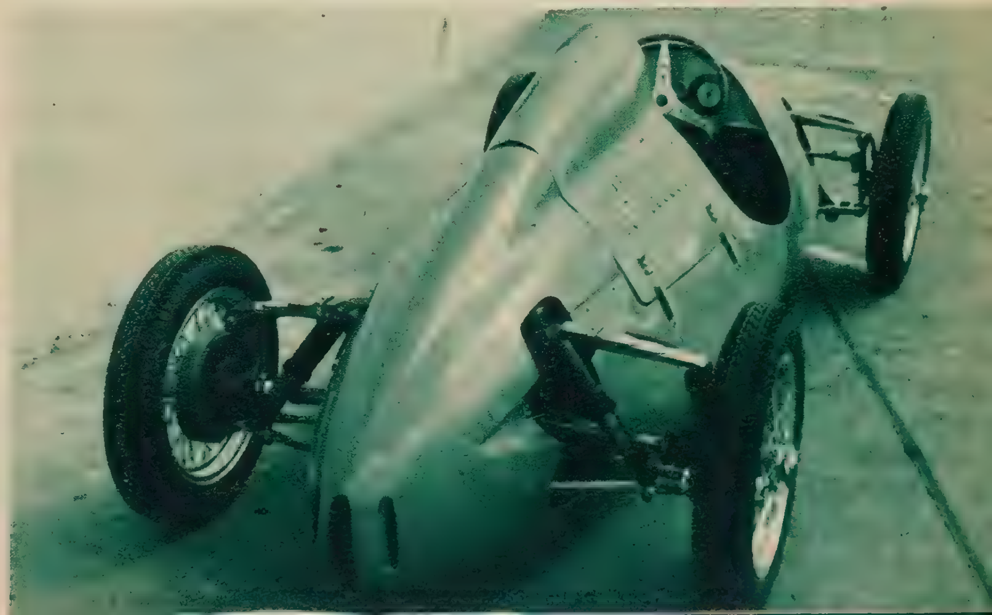
In racing trim, the Volpini will do about 100 mph, but with modified gearing, it has a top of over 100 mph. The additional speed is not necessary because most Formula 3 races are on very sinuous circuits, where their average speed is around 62 mph. The higher gearing would reduce acceleration, which means they would lose speed at low and medium rpm. As on most European race cars, Volpini uses Rudge type wheels by Borrani, which, besides being lighter, assist brake cooling very much. They also reduce pit time in case there should be a wheel change during the race.

Eventually this car will use the very special 4-cylinder Gilera 500 cc 50 hp engine in the same chassis and body. For now, Volpini drivers are: Bonetto, who passes from the 400 hp of Alfa Romeo to the 45 hp of "Cigaret lighter" F.3 cars; Pagani, a motorcycle ace, and Pesci. They will participate in all the F.3 races of this year. The Volpini car, with "Saturno" type engine, costs 2 million Lires ($3,350).



Below, the complete car from the rear. Note exit holes for cooling air. At left, the brake drum and splined wheel hub assembly of the Volpini. The large holes and fins assist cooling.





自動車の群は灰燼のツラックの砂ぼこりを突切つて疾走す

東京郊外自動車競争

Tokyo Road Race

Motor sports activities are flourishing in Japan despite economic and industrial hardships . . . races and other events are regularly held for sports cars, specials, and motorcycles.

Many ex-horse race tracks have been converted from hay to gasoline. At Funabasi, Chiba, near Tokyo, such a track was the scene of an Annual Charity Race. Thick dust boiled from the cinder surface as enthusiastic drivers went tearing about in pukka dirt track style.

All of this information, and photos, came to us thru our Japanese contemporary, "The Motor Fan." They have excellent articles of both sports and technical nature on all phases of motoring, including a readers' Design Forum. Their slogan, "The Motor Enthusiasts' Magazine," was borrowed from your favorite publication. No motor library is complete without this Far Eastern Road and Track, so write: The Motor Fan, Tokyo-to, Shinjuku, Misakae Machi, 21 Banchi, Japan. (P.S.—The articles are written in Japanese)

MG RACE 8,000 m.

1st	MG TD	R. Irvins
2nd	Morgan	F. T. Skeen

SPECIALS 4,000 m.

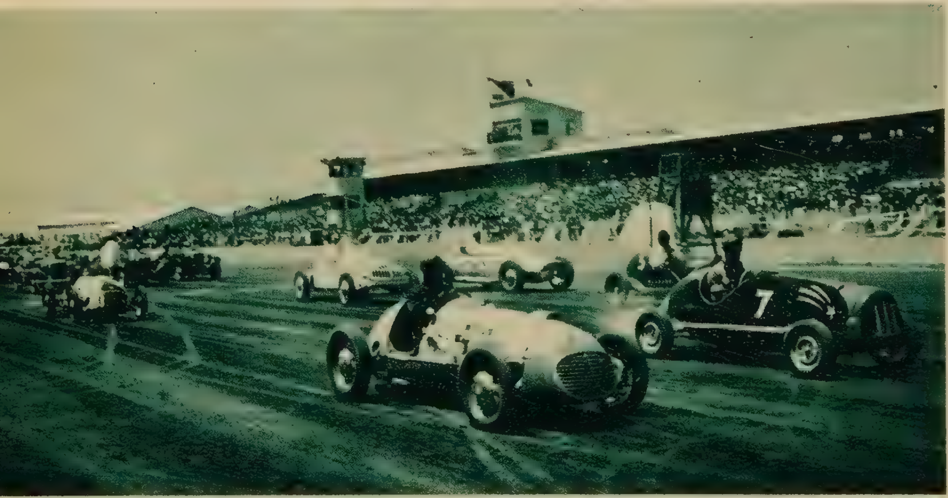
1st	Dat King 750 cc	U. Ogawa
2nd	Crosley 750 cc	Y. Yoshioka

MG RACE 8,000 m.

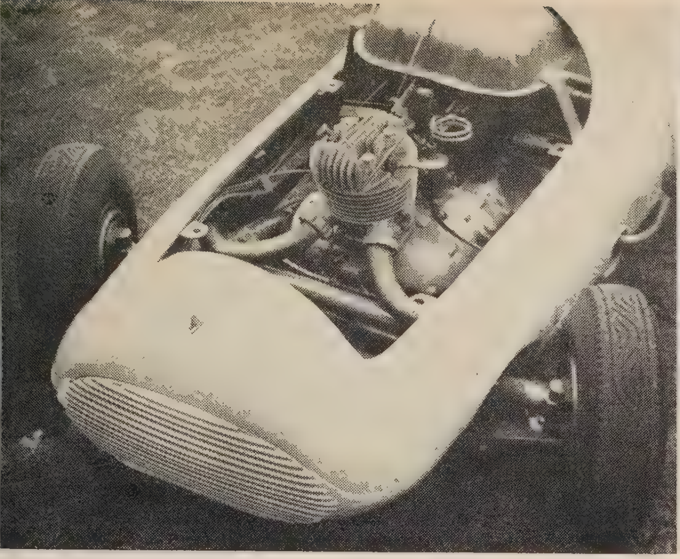
1st	MG TD	S. Suddjane
2nd	MG TD	T. J. Mankin

MG RACE (FINAL)

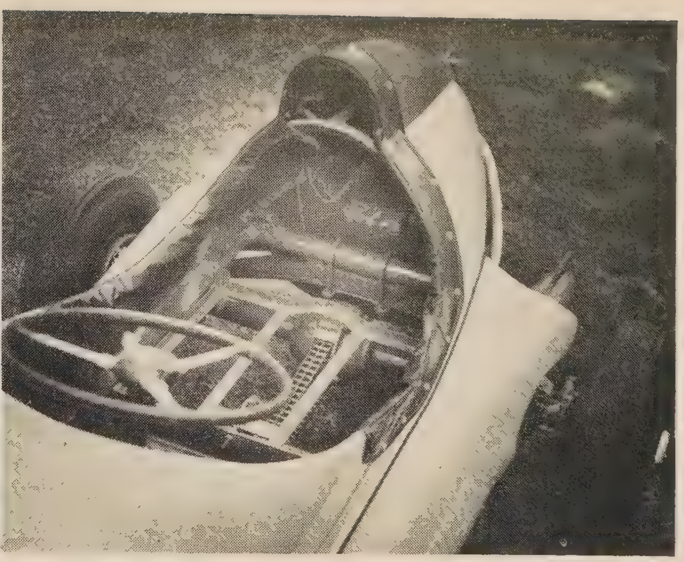
1st	MG TD	S. Suddjane
2nd	MG TD	R. Irvins



スポーツカーは舊競馬場にて砂ぼこりを後に疾走す



Two-stroke 9½ hp motorcycle engine supplies power. The neat grille is an example of the excellent workmanship by these Mexican craftsmen.



Chain drive, transverse spring, and tubular frame are illustrated above. Note the battery (for ignition) which is located in the tail of the car.

BOMBITA

(LITTLE-BOMB)

Article and photos by Felipe Turich

Should the peace and tranquility of your visit to Mexico City be shattered by the passing of a very small, very fast, and very noisy little race car, you can blame "Bombita" (Little Bomb), formerly known as the "Parays."

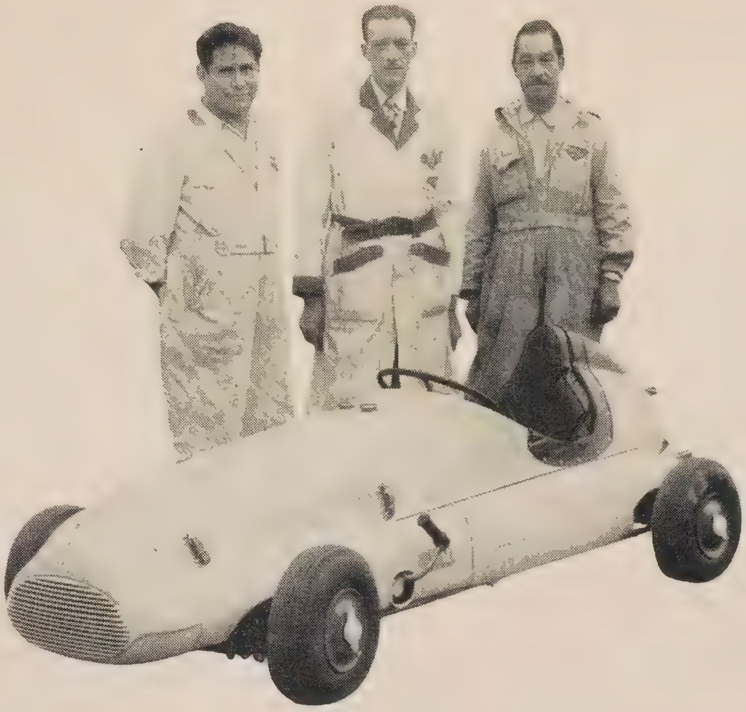
This beautiful little car was built for the young son of Dionisio Francisco Ardura, service manager of Servicio Buick, the Mexico City Buick dealer.

Using Ardura's sketches, Octaviano Noriega designed the suspension and chassis details, then carried thru on the construction. Jesus Gaspar was the craftsman responsible for the very fine body work on the Bombita. (If work of this calibre is available "south of the border," it wouldn't be surprising to see specials builders heading south.—Ed.)

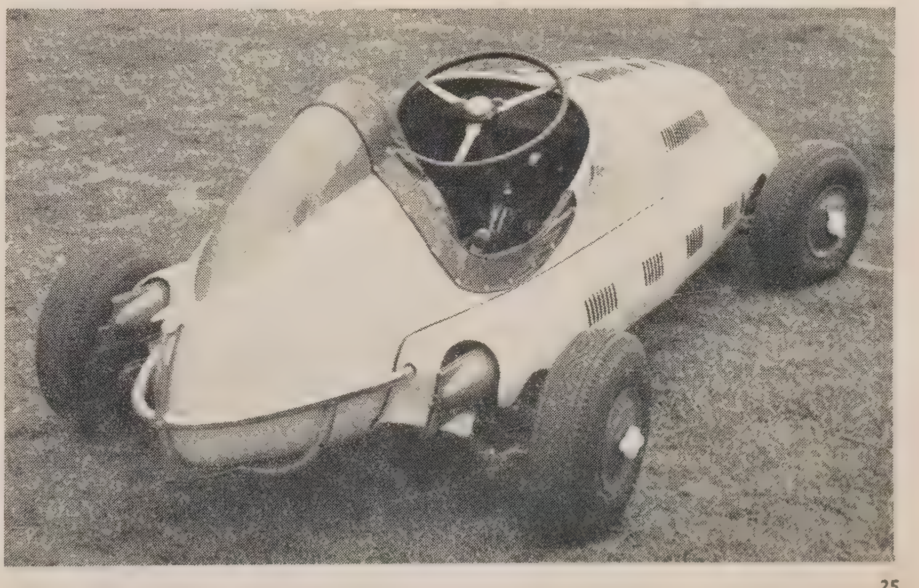
Based on a tubular chassis, springs are half-elliptics at the front and transverse at the rear. A two-stroke one-cylinder D.K.W. motorcycle engine (9½ hp at 6200 rpm) drives by chain thru a 3-speed transmission to a full-floating rear end. Tread is 37½ inches at the front and 38½ inches at the rear . . . total length is 95½ inches. Bendix brakes operate on 6-inch wheels. Fuel capacity is 2½ gallons. Total weight is 450 pounds.

Upon completion, however, the Bombita, with its lively D.K.W. engine and light weight, proved to be quite a handful for Dionisio Junior. Present plans call for conversion to a Formula III car by installation of larger wheels and engine. Perhaps this will be the start of 500 cc road racing activity in Mexico.

Note the way the neat exhaust manifolding passes down thru the body on each side, emerging in a fishtail, which gives it that Grand Prix "crackle." Maximum speed is reported as being around 60 mph. Watch out, Junior!



Octaviano Noriega, owner Dionisio Ardura, and Jesus Gasper stand behind cute "Bombita."



Rows of louvers help to cool engine. Workmanship on body is equal to or better than that found on most American race cars.

Steering Phenomena . . .

I

Low-Speed Wobble: "Flap"

The front wheels of a car are free to pivot on their king-pins against the flexibility or "sponge" of the steering linkage in the same way as the balance wheel of a watch can pivot against the flexibility of the hair spring. The energy required to keep the watch balance wheel going is very small because it is applied at the right time and because the friction in the watch is kept small; if this friction grows too large the "low-speed wobble" of the balance wheel will not build up and cleaning is required before the watch will go again.

The energizing of the low-speed wobble on the front wheels of a car is a more complicated business than activating the "balance" of a watch. It depends on the caster angle (or fore and aft lean of the wheel pivots), on the front end weight, on the sideways flexibility of the frame and wheel mounting, and on the car speed. If the maximum tendency to wobble occurs at, say, 25 mph, then it tends to persist over a higher speed range above this than below—in given conditions, say, up to 50 mph and down to 15 mph. Even the spring is more complicated than the hair springs, since not only the linkage—steering arms, ball joints, steering box mounting and so on—but also the tires, are included in it. In general, the stronger the spring the less the likelihood of low-speed wobble, but as a stronger spring (or less "spongy" steering linkage) implies more tendency to feel road shocks of "joggles" at the steering wheel, there is a practical limit to this lack of flexibility.

Our interest in low-speed wobble, unfortunately, is not purely academic. Wobbles have to be cured, or—better still—prevented. This can be done, as already mentioned, by a more rigid steering linkage, by reduced caster angle, and by fricion in the king-pin bearings and steering ball joints. A nice balance has to be maintained in the use of the remedies; too much friction gives a steering which is heavy and dead, too much rigidity in the steering linkage gives too much liveliness at the steering wheel, a fidgetiness which leads to tired fingers and wrists. The use of an independent front suspension, giving reduced gyroscopic action of the front wheels, reduces road "fight" and so, by allowing a more rigid steering linkage to be used, can help in the prevention of low-speed wobble. The effect of sideways flexibility in the frame front end and wheel mounting seems to depend on how stiff the original frame and mounting are.

A cure to be effective must be permanent; king-pin bearings must be well enough machined initially to maintain constant friction thruout their life—if regularly greased—and ball joints, since their friction also contributes to the cure, must have "follow-up" action so that they do not lose their friction with wear. The owner must see that the tire pressures are maintained at the correct figure.

Different types of cars have different peculiarities and habits; one, for instance, would only oblige on dry roads, and resolutely refused to wobble in the wet; another would only perform on wet roads and preferred uphill going!

There is reason behind these idiosyncrasies and they can all be explained by sufficient knowledge and proper study of the cases.

II

High-Speed Wobble: "Tramp"

In low-speed wobble the front wheels of a car behave like the balance wheel of a watch, the hair spring being the steering linkage, and the tires. In high-speed wobble it is the front axle which behaves like a balance wheel, the springs being of course the suspension springs of the vehicle and also—or alternatively—the front part of the frame, which is often flexible enough to behave like a spring even if it does not look like one, together with the tires, which are in effect springs between the axle ends and the road. Like the balance wheel, which controls the speed of the watch, the axle on these "springs" has a natural frequency, and if, for instance, the speed of rotation of the front wheels coincides with this frequency, and the front wheels are slightly out of balance, then the oscillation of the front axle builds up into what is known as high-speed wobble, "shimmy" or "tramp."

The wobble is due to gyroscopic action, the rocking of the axle about a fore and aft axis causing the wheels to rock about their king-pins because of this effect. As viewed from the driver's seat, counter-clockwise movement of the axle turns the road wheels to the left, and then the wheels, because they are pointing to the left, are acted on by caster effect and by the precessional or self-righting torque first mentioned by R. D. Evans in his paper on Tires in the S.A.E. Transaction of 1935, and these two influences urge them in the opposite direction, this process being also helped by the gyroscopic action caused by the clockwise movement of the axle which is now taking place. The wheels of course overshoot the straight ahead position whereupon the same influences, but now acting in the opposite direction, first stop them and then push them back, and the process goes on ad nauseam. If circumstances favor it the wobble can build up into a violent oscillation consuming so much energy that in some cases the engine has insufficient power to drive the car thru the wobble, and in such a violent wobble the wheels leave the road alternately when the axle is at its extreme positions of rock—this is why it is called "tramping," the car feeling as tho it is striding forwards—and the tires leave kidney-bean shaped marks on the road.

Prevention or cure of this malady is of course the motor car designer's aim. Reduction of caster angle helps; the application of damping—the further out towards the ends of the axle the more effective it is—prevents the wobble from building up, or at least hinders it, and stiffer front springs or harder tires, by increasing the rocking speed of the axle, may put it high enough to be outside the speed range of the car—the wheels never go round fast enough to be able to excite it. Reduced weight of brake assembles, wheels and tires, has of course the same effect. Wheels should be kept in balance.

Independent front suspension, if it has little or no gyroscopic action, is of course a cure, unless the frame is torsionally so flexible that it acts like the front springs of the conventional axle—one of the reasons for requiring a more rigid frame with such a suspension.

III

"Wander"

One or more of a number of causes may be responsible for "wanderlust" in a car. there may be insufficient "play back" or self-there may be insufficient "pay back" or self-centering tendency, or the car may oversteer—this last meaning that when for any reason the car finds itself describing a curved path, it tends progressively to reduce the radius of that curve or to sharpen up the corner, unless corrective action is taken by the driver. Geometry errors in the steering linkage, or springing arrangements which steer the wheels as they move up and down, are two further causes.

"Toe-out" probably results in wander because variations in the load carried by the two front wheels—as when one wheel strikes a bump, for instance—cause first one wheel and then the other to take charge, and variations in direction of the car occur because the wheels are not parallel. On this reckoning too much "toe-in" should also produce wander, and while there is no public record of this having been checked, usual practice suggests that "toe-in" should vary from nothing to not more than ⅛".

Insufficient "play-back" means that the driver cannot feel the steering and because of this keeps on over- or under-correcting the slight deviations which are constantly occurring: softer front tires and lubrication of kingpin bearings, steering linkage and box, usually effect considerable improvement.

Geometry errors in the steering linkage mean that when either one or both front wheels move up and down in going over a bump or ridge, they are steered to right or left and the driver has to correct accordingly. Springing arrangements which steer the wheels with up and down movement obviously work in the same way, and either front or rear wheels or both may be affected. The cure or the prevention in both these cases is in the designer's hands.

Oversteer is rather too involved a subject to be dealt with in an article of this length. Most of us have met it when carrying some heavy object, such as a sack of potatoes, on the luggage grid at the back of the car, and have noticed that the car does wander when this is being done. The quick remedy in the case of an existing car is to have softer front and harder rear tires, but where a new design is in hand the whole layout of the car affects it; weight distribution, springing arrangements, tire size and inflation, must all be considered in relation to this, and arranged to give the desired result in this and of course in all the other matters they affect. Much yet remains to be learned about over- and under-steer and it is not yet possible to forecast exactly the behavior of a car in this respect, but it should now be possible to get approximately what is desired and leave only small adjustments to be made during the development stage.

This is the fifth of a series of articles reprinted by courtesy of Thompson Automotive Products Co., Leamington Spa, England, makers of the Thompson Self-adjusting Steering Rod Assembly.

TECHNICAL CORRESPONDENCE

MORE JUMP FOR '50 FORD

My 1950 Ford V-8 is equipped with 8½ to 1 aluminum heads, dual manifold, dual exhaust; now I want to bore and stroke the engine, and I would like your opinion as to how far I can go and still retain the durability and smooth low-speed performance of the stock engine.

Would boring the cylinders to 3-5/16 in. diameter (4 in. stroke) and using a stock '50 Mercury crankshaft lessen the durability of the engine appreciably? How much additional horsepower would this alteration give?

What I want is a compromise cam grind which will give me the ultimate in acceleration and still permit smooth operation in traffic. I already have more top speed than I can safely use on most highways; what I want is the absolute maximum in acceleration.

How much additional horsepower would result from taper-boring the intake ports and installing Oldsmobile Rocket intake valves?

Mexia, Texas E. J. Hyden

The engine combination you describe is generally considered conservative, and safe, assuming, of course, that the new assembly is dynamically balanced. Your displacement goes up from 239 to 276 cu in. or 15.5% and power will go up the same amount, provided the engine can "breathe."

This latter qualification is important because you should either use larger intake valves or longer duration cam to insure good breathing. If you use larger intake valves, you can use a more conservative cam re-grind to get the same results as stock valves and a more radical cam. Thus, the advantage of the large valves is better low speed performance, since the cam is more conservative, yet gives good flow at high speeds.

It's very difficult to advise on a cam grind, and all I can say is that each step up helps more at the top end, and hurts more at low speeds. Incidentally, the large intake valve permits symmetrical timing (equal duration on both intake and exhaust) while stock valves require a longer duration on the intake than for the exhaust.

If your present heads are actually 8.5 to 1, then this ratio will become 9.6 with the 276 cubic inches. This is much too high, not only for pump gasoline, but from the standpoint of that same breathing I've already mentioned. By all means relieve the block. This will both lower the compression ratio and give more area in the transfer passage of the combustion chamber.—Tech. Ed.

0-60 MPH TEST

What is the best way to correct a speedometer for 0-60 mph test when using a chronograph? Which is the best measure of acceleration, 0-60 mph or ¼ mile standing start?

APO, San Francisco, Calif. Sgt. Roy Edwards

To get an accurate test of 0 to 60 mph acceleration, you must find out what reading on the instrument is exactly equivalent to an actual 60 mph. This requires an accurately measured road section of at least a ¼ mile. Keep driving passed this ¼ mile stretch at absolutely constant speeds; for instance, I found that 68 mph on my '49 Ford's speedometer would give me a quarter mile time of 15.00 seconds or an honest 60. This check is best done with an observer holding the stop watch, and sighting very carefully and consistently between some reference point on the car and the ¼ mile markers.

The ¼ standing start test is a much better way to judge acceleration (I maintain) because it covers a wider speed range and is more fool-proof since there is no speedometer error to contend with. It's too bad that hot rod ¼ mile times are usually made from a vaguely defined "rolling start" as this makes their times vary somewhat, and therefore relatively meaningless.—Tech. Ed.

BORED MERC COMPRESSION RATIO

What compression ratio does 4″ stroke and 3-5/16 bore with stock '46 Merc heads give me?

Norfolk, Virginia James N. Councilf

The combustion chamber volume of a stock 6.7 to 1 1946 Mercury figures out to 5.25 cu in. Then 34.5 cu in./cyl. + 5.25 = 39.75 cu in. and that divided by 5.25 = 7.6 to 1 in your set-up.—Tech. Ed.

0.60″ OFF FORD 6 HEAD . . . NO, NO!

I own a completely stock '47 Ford six and I would like to modify at reasonable cost. In your column you recommended 0.60″ be milled off of the head of a '50 model. How much would this raise the compression? What about having the flywheel turned down? Also what about a larger carburetor?

Hattiesburg, Miss. Lyle Bange

Please don't try to mill 0.60 off a Ford 6 cylinder head, that was a misplaced decimal point that was supposed to read .060 which will give about 7.25 compression ratio. The lighter flywheel will improve acceleration, especially in first and second gear, but does not add to the horsepower. A larger carburetor is not advisable unless you are interested primarily in more top speed.—Tech. Ed.

MERC CRANK IN '50 FORD

I have a '50 Ford V-8 four-door sedan with overdrive. According to my local Ford dealer's parts manual, Ford and Mercury use the same rods and bearings. I purchased 7¾ to 1 heads with the intention of installing a Mercury crankshaft to give a 4-inch stroke and a compression ratio of around 8 to 1. According to the Ford mechanics, everything would work okay except that the pistons (reg. Ford) would hit the head.

If it is mechanically sound to install a Merc crank in a Ford ('50) engine using Ford pistons, what (about) would the horsepower run with the stock 3-3/16″ bore; 4″ stroke; and 7:75 compression ratio.

In your opinion, how much horsepower would be necessary to give my high overdrive (2.89 to 1) the same or nearly the same amount of pickup as is had with a std. 3.73 axle.

Wenatchee, Washington Melvin H. Chapman

The 4″ stroke Mercury shaft will fit into your '50 Ford engine—I've done it. I used the Ford pistons, but I do not advise this for your engine. Ford pistons normally are .030 below the top of the block. So, I had special heads cast with extra thickness to permit counterboring (for piston clearance at TDC) to a depth of .094. Another reason I do not advise using Ford pistons is the question of counterweight clearance to the piston skirt at BDC. My engine "cleared" by ⅛ inch at one end of the engine, and by only .010 at the other.

The stock Mercury pistons are shorter and eliminate the above problems. The two shafts are dimensionally identical except for stroke, the change is mechanically sound (except for more piston speed, of course), and power goes up roughly in proportion to displacement—in this case, 6.6%. I suggest you relieve the block to gain on volumetric efficiency and at the same time getting the compression ratio back to about 7.75 to 1 from the 8.20 you would have with the extra stroke.

I can't answer your question on pick-up of 2.89 ratio vs. the 3.73 ratio, except in a very general sort of way. In any given gear, torque is more important than horsepower, and using the ratio of $\frac{3.73}{2.89}$, you would need 1.29 times more torque with a 2.89 axle to equal 3.73. In other words, instead of 180 ft. lbs., you would need 232 ft. lbs., an increase of almost 24%. Actual torque is more dependent on displacement than anything else, so you would need 296 cu in. Torque does go up some with compression ratio, but if you are trying to equal (with 2.89 ratio) a stock Ford with 3.73 ratio, the 225 cu in. won't do it.—Tech. Ed.

MILD HOP UP FOR OLDS 88

I have a 1950 club coupe Olds 88 with Hydramatic . . . [want] a car for pleasure that will still outperform other stock cars . . . decided to use dual exhaust, dual intake manifold with dual carburetors and dual ignition with a Mallory coil and condenser . . . could a dual set of Rochesters be used with some type of air filter? What is done to the automatic choke in the dual set up?

Clermont, Indiana Paul H. Wright

I suggest you go ahead with plans for using two carburetors, dual exhaust, dual points, and Mallory coil. Since you have one Rochester, get another one like it. You can keep the automatic chokes by running both hot air supply lines to the same "hot box" on the exhaust manifold. Most dual carburetor setups use a hand choke, and you can do this too if you like.

You are very right about using air cleaners, and besides, I wouldn't like the noise of running without the cleaners. Speed shop catalogs all list Hellings or Air Maze individual cleaners available in all sizes.—Tech. Ed.

MORE TORQUE FOR '51 MERCURY

My 1951 Mercury Station Wagon performs very nicely and has speed to burn but lacks power on steep grades. Just as soon as engine rpm begins to drop, it is necessary to shift into second.

What can I do to get just a few more pounds torque so I will not have to shift on every little grade?

Brier, Mass. Henry C. Wing

I do not have very much encouragement to offer you toward improving the torque of your Mercury. This is because present-day American power plants are designed to give maximum torque even at some sacrifice in peak horsepower. There are only two things I would suggest: (1) bore out the cylinders to 3-5/16 which will then give 276 cu. in. with an automatic torque increase in the same relation to the size increase—i.e., 8%; (2) the use of higher compression ratio will also give a torque increase of approximately 5 to 8%.

There is nothing more you can do except install an OHV Cadillac engine.—Tech. Ed.

1949 LINCOLN

I have a '49 Lincoln that I would like to hop up. What would you recommend for: 1st, better economy; 2nd, higher top speed; 3rd, faster pick up?

What are the advantages and disadvantages of a ¾ grind cam?

Dallas, Texas F. M. Kirby

The use of heads such as are made by Edelbrock for the '49 Lincoln will give you all three of the advantages you specify.

Multiple carburetors are hard to predict, but there is often a slight loss in economy, a definite gain in top speed, a little loss in low speed performance, and an improvement in acceleration if you have Hydramatic, or use the "gears" to the best advantage.

Comparing a ¾ grind cam, it does just about everything outlined in the previous paragraph—only more so. The effect on idle and tappet noise depends on the maker, but it is bound to be noticeable.—Tech. Ed.

DODGE VS. CHRYSLER SPEEDS

Would like to know just how fast my Dodge can travel on a good straight stretch of highway without injury to the car. My Dad has a Chrysler 1950 Windsor 4 door; how does my Dodge compare with it?

I never see anything in your magazine about the Dodge. Why is that, I have always found them pretty dependable.

Lakewood, Ohio R. A. Mettler

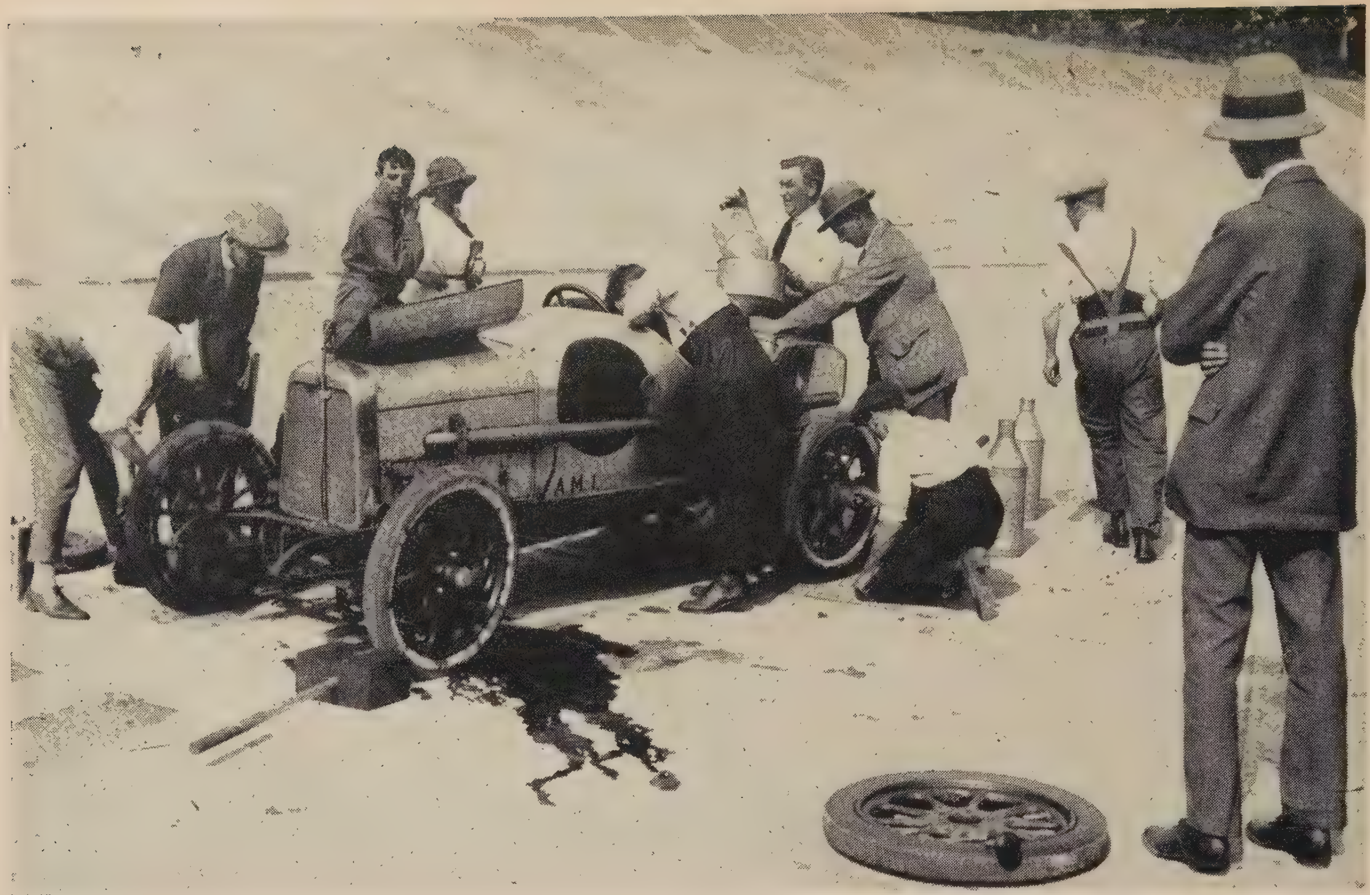
Several reliable sources give the top speed of the Dodge at around 88 mph or just about the same as the Chrysler Windsor.

There is no hard and fast rule to determine cruising speed. A generally accepted indication is, however, to set this speed to equal a piston travel of 2500 ft. per min. The following table is self-explanatory:

I think the reason you read little or nothing about the Dodge is that bluntly—it's a very dull car. Good, sensible, reliable transportation, yet, but the design factors produce a performance level whose mediocrity appeals to few people every year. Dodge popularity in the past 4 years has dropped from 7.46% (of total sales) to 4.74%. I hear the 1952 model will be terrific!—Tech. Ed.

(Continued on page 31)

MAKE	STD. AXLE	TIRE	WHEEL Revs/Mi	STROKE Inches	FT./REV.	ENG. Revs/Mi	ENG. REVS at 2500 fpm	CRUISE SPEED
Ply.	3.90	6.70	753	4.375	.729	2935	3430	70.1
Dodge	3.90	7.10	739	4.625	.771	2880	3242	67.6
Chy. 6	3.73	7.60	727	4.500	.750	2715	3335	73.7



Aston-Martin, known as "Bunny," during record distance record at Brooklands, May 24, 1922. Founder Lionel Martin pours fuel while driver S. C. H. "Sammy" Davis stands beside girl.
—PHOTO COURTESY "THE MOTOR"

History of Aston Martin

By James Watt

Assistant General Manager Aston Martin & Lagonda

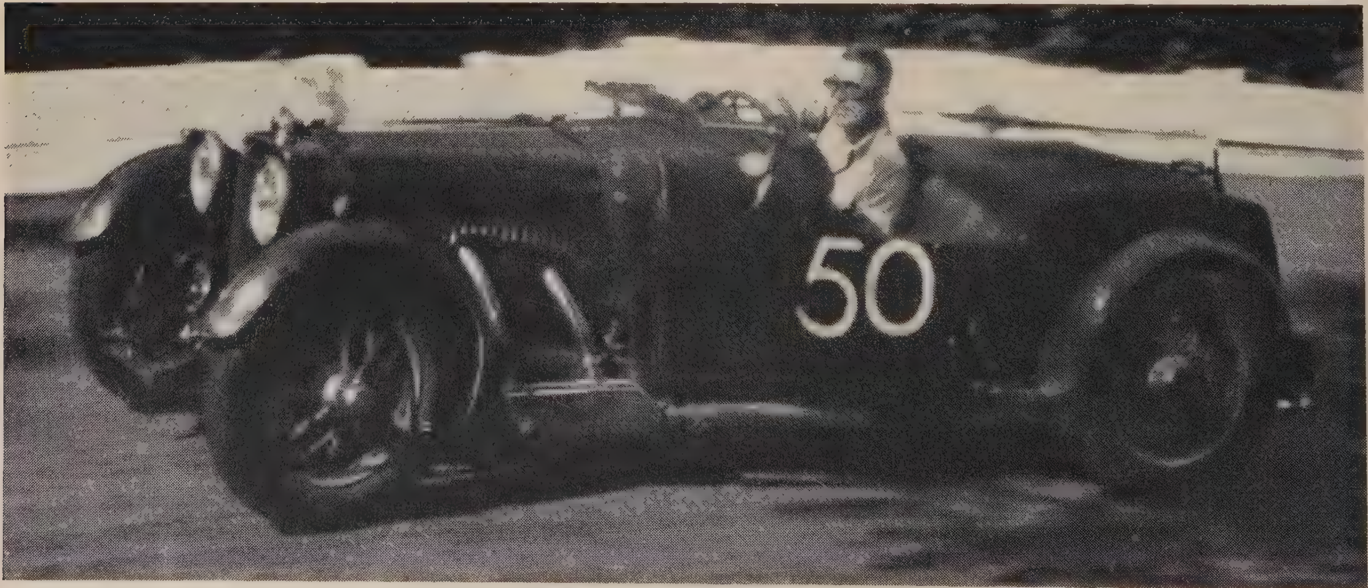
The first Aston Martin was put on the road in 1913 as a competitor to Bugatti. The Company (originally named Bamford & Martin, Ltd.) was controlled by Mr. Bamford and Mr. Lionel Martin.

The first car had an Isotta Fraschini chassis, a 1389 cc Coventry Simplex 4-cylinder side valve engine, a 4-speed gearbox, torque tube drive, artillery wheels and a maximum speed of 65 mph.

After World War I the company was refinanced by Count Zboroski, and taken over completely by Lionel Martin. Mr. Bamford having retired. As some of the cars had great successes in the Aston Clinton Hill Climb (a very popular sporting event in the early 1920's . . . situated some 40 miles from London), Lionel Martin combined the two names and the Aston Martin Car was born.

In the period 1921-27, a few experimental 4-cylinder 65 x 112 mm twin overhead camshaft engines were successfully raced all over Europe and on May 24th 1922, at Brooklands Track, the Aston Martin I (affectionately known as "Bunny") broke world records during a run of over 16½ hours, a historic performance. This car is still running today. It is interesting to recall that, altho the car only ran 16½ hours (averaging 76.20 mph), so outstanding was its performance that it actually established world records for runs up to 19 hours!

During the post-war period, the company had in production a side valve 4-cylinder Touring Sports car which had a speed of over 70 mph and an extraordinary reputation for long life and dependability. In 1924, in the 200-mile race, a stripped standard model averaged over 79 mph.



The 1½ litre 1936 'LeMans' Aston Martin at the Prescott Hill Climb in August, 1947.
—PHOTO BY LOUIS KLEMANTASKI

In 1927 the firm of Aston Martin Limited was taken over by A. C. Bertelli, a well-known racing driver who, with W. S. Renwick, designed a completely new 1½-litre car for regular production, the engine of which incorporated such advanced features as overhead camshaft and dry sump lubrication. During the period which followed, this car was improved and evolved until by 1930 the International Aston Martin was a low sports 4-seater. The frame was channel sections, braced with seven cross members, six being tubular, and the chassis was underslung at the rear. The suspension was of half elliptic springs all around damped by friction shock absorbers. The engine, now greatly modified from the original design of 1927, still retained its overhead camshaft and the dry sump lubrication. It was set well back in the frame, driving thru a 4-speed, close ratio, remote control gearbox via a torque tube to a full-floating rear axle. The wire wheels were of the Rudge "Knock-Off" type and the car was fitted with large 14" cable operated brakes. A large capacity petrol tank was placed vertically at the rear, and the body was, as previously stated, an open, close-coupled, 4-seater, altho a variety of different types of coachwork was available. However, on them all, the front wheels were fitted with cycle type mudguards turning with the wheels. The close ratio gearbox, high geared steering and good road holding (the catalog stated "its fierce acceleration and positive road holding") had an immediate appeal to the sporting type of motorist, and it is right to claim that this car established the sports car trend so popular up to World War II, and successfully carried on today by MG.

A vigorous policy of competition was pursued by the Company and, in 1932, Bertelli and Driscoll brought home the coveted Biennial Cup from Le Mans and, in 1935, Charles Martin and Charles Brackenbury broke the 1½-litre class record at Le Mans with an average speed of 75.5 mph, gaining once again the Biennial Cup. This 1½-litre class record stood from 1935 until 1950 when it was beaten by about ½ mph by a Jowett Jupiter in the 1950 Le Mans.

1934 saw the first Mark II model from which was developed the famous "Ulster," perhaps the most admired of all the earlier Aston Martin cars.

Late in 1932, Aston Martin Ltd. again had a change of direction, and the Company was re-financed by Mr. R. G. Sutherland.

In the period 1935-36, it was decided to increase the capacity of the engine and the 2-litre 4-cylinder, known as the 15/98, was introduced. In the Speed Model, which had special engine with a hollow crankshaft, over 100 bhp was obtained with a maximum of 5,000 rpm. The standard production cars were a saloon and an open, close-coupled 4-seater. These 2-litre ohc models were continued up to the outbreak of the recent war. In 1939, a prototype was constructed which was the first independent suspension Aston Martin. This car, known as the Aston Martin "Atom," was very advanced for its time, the chassis frame and body being in one piece. The engine was the production 2-litre 4-cylinder ohv.

After the 1939-45 war, it was decided to concentrate on producing an easily serviced 2-litre 4-cylinder engine and to facilitate the servicing, the overhead camshaft was discarded in favor of push-rods.

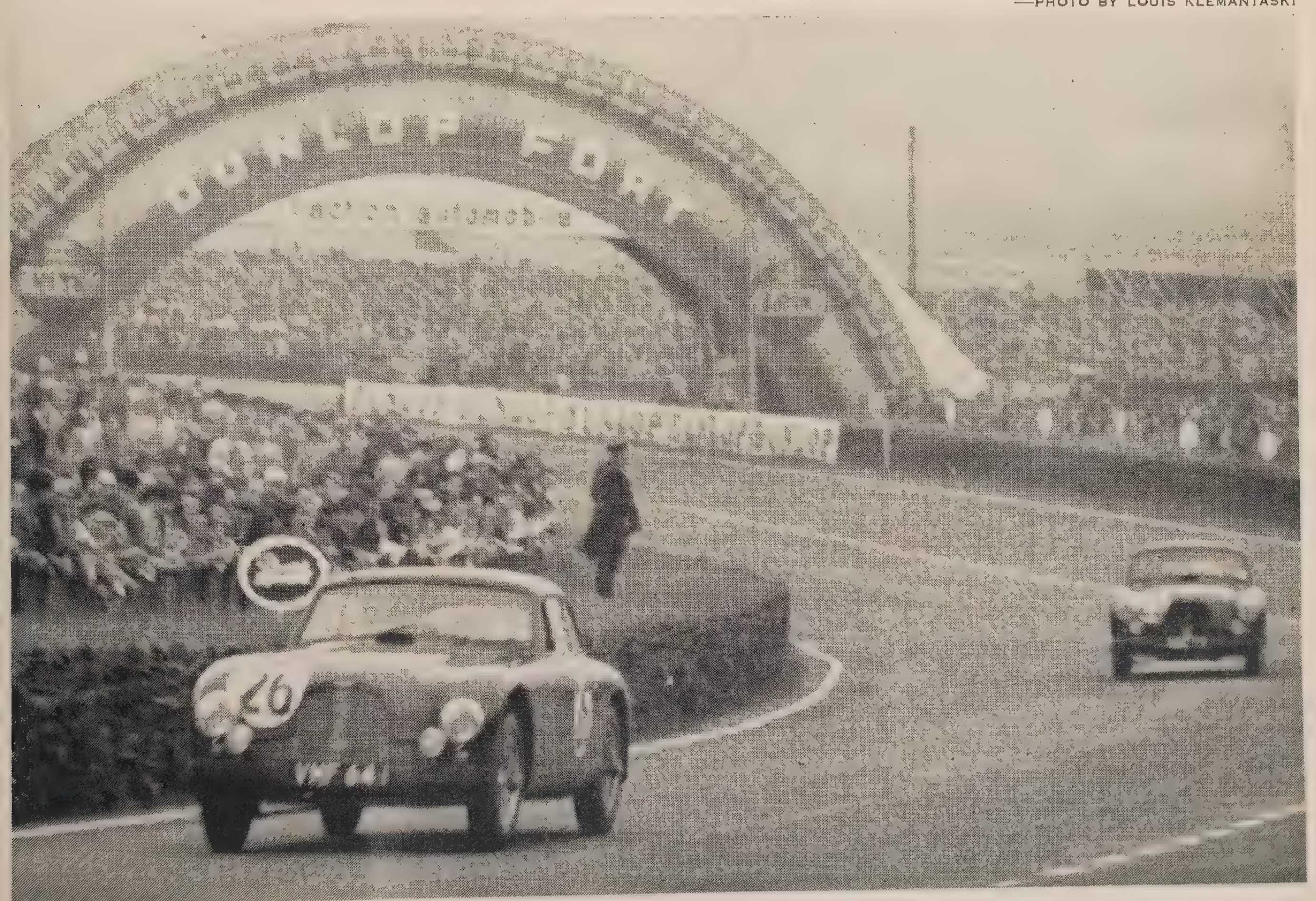
In 1947, Mr. David Brown, head of the world renowned gearing and tractor companies, bought Aston Martin Limited, and the program of the new 2-litre push-rod Aston Martin was accelerated until, in 1948 and 1949, the new car was actually in production. This incorporated a girder type of independent front suspension with coil springs front and rear. The standard production model was a 2-4 seater drophead coupe. In 1948, one of these cars in 2-seater form, driven by Leslie Johnson and the late St. John Horsfall, won the Belgian 24-Hour Sports Car Race (a race similar to Le Mans) beating the whole field, irrespective of class. It also won the 2-litre class.

When the writer joined Aston Martin Limited in January 1950, it was decided to commonise the power units of Lagonda, an associate company, and Aston Martin, and the DB.II was born. This Aston Martin was first publicly announced to the world in April 1950 at the British Motor Show in New York. A new tubular steel chassis with independent front suspension of the trailing link type had been evolved on which was mounted an aerodynamic body. These were married to the very efficient and powerful 6-cylinder twin overhead camshaft engine and the whole car was notable for its combination of soft suspension and superb cornering ability while its road holding qualities were of the highest order.

In June 1950, at Le Mans, the Aston Martin DB.II tied for 1st place (handicap) and took the next place in the Fourth Annual Cup . . . the two cars cames 1st and 2nd in their class. In addition, they took the 3-litre cars total distance record and the 3-litre lap record (at 93.15 mph). A team of three cars was entered for the 1950 Ulster Tourist Trophy, coming 1st, 2nd and 3rd in the 3-litre class.

The present policy of the Company is to pursue vigorously an active racing program for 1951 and already at the Daily Express International Production Car Race at Silverstone on May 5th 1951 the Aston Martin DB.II came 1st in the 3-litre class. The performance of the five Aston Martins at Le Mans 1951 is, of course, well known.

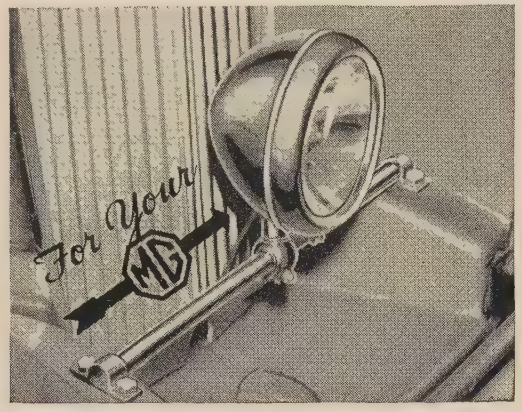
Aston Martin, a thorobred sports car for over 37 years, using experience gained over this period and a vigorous policy of competition research, have truly earned their slogan "The Race-Bred Luxury Car."



Pair of Aston Martin DB.2's at LeMans, 1951.
—PHOTO BY LOUIS KLEMANTASKI

You'll want this handsome light for your MG now!

ARNO-LITE DRIVING LIGHT or SPOTLIGHT



Your Choice of Flood or Spotlight with either Amber or Clear Lens

A handsome as well as a practical and SAFETY-WISE addition to your MG TD roadster. ARNO-LITE was built just for you . . . with choice of beam that's either a long, sweeping flood, or a sharp piercing spot, with either amber (fog) or clear lens for both. Designed for a low position, central (TC or TD) badge bar mounting . . . with full horizontal adjustment for accurate, *fixed* positioning to all driving conditions . . . for safety always on straight-away, curves or hills. ARNO-LITE'S usefulness is matched by the superb beauty of its graceful shape and gleaming chrome finish. Its easy to install.

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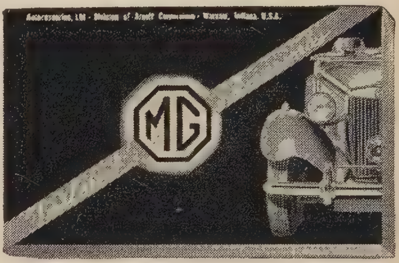

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POETS' CORNER

THOUGHTS WHILE PASSING INSKIP'S SALON

The new Rolls-Royce.
(Coachwork by Hooper),
Is really quite
A "Super-Dooper"!

To own this car
(Oh, fondest yearnings!)
Would only cost me
Eight years earnings!

I must forget
Such fine carrosserie,
And pinch my pennies
At the grocery,

So in a year
(Or little more),
I can buy
A "thirty-four",

From the friendly
Used Car man
(With a bit of help
From the Morris Plan!)

Robert Kevin Sutherland

GREAT EXPECTATIONS

When I was one-and-twenty
  I heard a wise man say,
"If you're so sold upon it, lad,
  Buy that MG today."

But I was young and foolish
  And needs must take a spouse
Then every cent that came my way
  I poured into a house.

Now I am one-and-thirty
  And have no MG yet
For daughters three, the wife and me
  Just can't squeeze into it.

But when I'm one-and-forty
  And married off each daughter
Then I shall have a new MG
  Come "Hell Or High Water."

Yes, when I am one-and-forty
  That dealer's going to sell
A 1961 MG
  To Joseph Joy LaBell.

Joseph Joy LaBell

CONVERSION

Hand me the hacksaw, the torch and the file,
Hand me the Cadillac grille,
Hand me the nuts and the filter of chrome,
To dress up my wheezing old mill.

Hand me the wrenches, the lowering blocks,
Hand me the wire of bright red,
Hand me the headers, the fishtail fins,
And seventeen buckets of lead.

Flip me the cam and the 10 to 1 heads,
Stand back while I channel and chop,
Heave me the spotlights and amber fogs,
Now throw me the white canvas top.

Slip me the primer, the proper dull gray,
Pass me the anti-sway bar,
Toss me the zebra-skin covers and trim . . .
Eureka! My new Kusstum Karr!!!

Samuel Weill, Jr.

VISITOR IN THE "STATES"

There was a young lady from Britain,
Who drove just as cute as a kitten,
She pulled to the left
With all of her heft,
Then yelled, 'Oh, what am I hittin'?"

Mrs. Theodore R. Dopp

HOP UP

I own a common man's Chev,
Can't afford a Jag.
Wanna improve the rev,
So's I can win a drag.

Consultin' the best mechanic,
Just for an estimate.
He took a look, and' said to me,
Rejuvenate your crate!

What've you got to offer?
What will do the job?
Got somethin' to make her purr?
Something to make her throb?

Buy Belond's dual exhaust,
Next an aluminum head.
Then a coat of gloss
(This year we're featuring red).

Get a couple'a Stromberg jugs,
Cams an' all the rest.
With six new racing plugs,
Your car'll pass the test.

For all my work an' advice
I'll want eight hundred dollars
  an' ninety one cents!
(Reader, do you know the price
Of a slightly used Mercedes-Benz?)

Franklin Pass

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TECHNICAL CORRESPONDENCE

(Continued from page 27)

5" SHACKLES ON '41 FORD

Will the instalation of 5 inch shackles on a '41 Ford 2-door require any changes such as a track bar? If so, what is a track bar?
Vandergrift, Pa. Gennaro Faiola

The best answer to your question, "What is a track bar?" can be found by looking on Page 65A of the Ford Chassis parts and accessory catalog for passenger cars from 1928 through 1948 published by the Ford Motor Company on April 1949.

I certainly think a track bar is absolutely essential if you use longer shackles on the rear of your 1941 Ford.—Tech. Ed.

USE CAN-OPENER ON CAD?

I own a 1941 Cadillac 60 Special which I want to have made into a convertible sedan. I have written to a well-known top maker, and they advised me against this, not stating their reasons.
Lincoln, Nebr. William H. Gunderson

I see no serious drawback to making your 60 Special into a convertible—the frame is extremely rigid and you already have the necessary door and window construction.

A truly convertible folding top would present problems of top bow arrangement and disposal, and a padded top does not fold. This does give me an idea. Why not take a can-opener to the metal top and have the resultant edges re-inforced and provided with suitable rubber seals and clamps. Then you can have the metal top covered completely with top material, and it can be easily lifted off by two people, when you want an open car.—Tech. Ed.

FORDILLAC vs FORD WEIGHTS

I have thought about buying a "Fordillac" because of some of the advantages it offers, such as gas mileage, power performance in all gears, availability of replacement parts, etc. Still with all of these good points, one thing has come to my mind which has put me in doubt.

According to the Tire and Rim Association, the '50 Ford on the 6.70 x 15 tires can have an additional 447 lbs added before the tires become overloaded. All of the Ford-Cadillac conversion firms that I have written to, say the 6.70 x 15 tires are sufficient.

This I don't get. If the Ford engine weighs 350 lbs (?) and is replaced with the Cadillac engine which weighs approximately 600 lbs (?) this would mean an increase of 250 lbs on the tires. If the maximum weight which can be added is 447 lbs and you subtract the 250 lbs additional engine weight, then you have only 197 lbs of weight that can be added before the tires are overloaded. Now I weigh 185 lbs, which leaves only 12 lbs of weight that can be added before the tires are overloaded. If this is true, I couldn't carry another passenger without overloading my tires.

In addition to this, the weight would be put in the front end of the car. Would this do any harm to the car balance and handling?
Clermont, Indiana Paul H. Wright

Your reasoning on the tire loadings of a Fordillac is perfect, but weight figures on the engine are a little off.

'49 Cadillac	**699#**	**(with all accessories including even flywheel and clutch)**
'49 Ford	**569#**	**(same as above)**
difference	**130#**	

The Fordillac conversion carries less water and as a result, the car weighs only 90 lbs more than a stock car. This weight is virtually all added to the front wheels. But, front seat passenger weight is divided front and rear in inverse proportion to the respective distances, or very roughly, half on the front wheels, half on the rear.

By now you have read my comments on the '49 Ford after 48,000 miles. I do not believe the Fordillac is any less satisfactory, and I would not hesitate to buy one if I were satisfied with the stock Ford. I would suggest 6.50 x 15 tires and 1½-inch lowering blocks in the rear. Another refinement would be 1942-'48 Lincoln gears in the transmission, but these are very hard to get, and 1940-'41 Lincoln gears are a 2nd choice offering considerable advantage in low, but little change in the second speed ratio. —Tech. Ed.

MORE "JUMP" FOR '50 BUICK

I have a 1950 Buick Special with Dynaflow and a 3.6 rear end ratio. It's kinda sluggish from 0 to 30 mph . . . 6 seconds. Would a "¾ race" cam help increase acceleration? ......
Chicago, Illinois Martin Dean

A ¾ cam would not improve your 0 to 30 mph acceleration time in drive range. It might show up a little better in the Lo range where the engine has a chance to reach an rpm high enough for the cam to make itself felt.

A torque converter is bound to be sluggish on initial "take-off" but can be improved by driving technique: using Lo range, or putting your accelerator to the floor, holding the car with the brake, and then releasing the brake suddenly. You can also race the engine with the lever in neutral and jam it into either low or drive, but this is not recommended—too hard on the transmission.

If you really want a fast "jump" you will have to revert to the conventional transmission. Also remember that the Buick is heavy and the new larger 263 cu in. was a much needed improvement.—Tech. Ed.

OLDS 88 TWIN PIPES

We have been having a heated debate on one question:

All speed fans and mechanics say by eliminating back pressure in the exhaust system will make a slight increase in top speed. Such as the Belond Equa-Flow Exhaust system. How? Take a 1950 Olds 88 for example. The top rpm developed is 3600 and say with a gear ratio of 3.42 to 1 say the clocked speed is about 94 mph. How would reducing back pressure increase top speed without exceeding the 3600 top rpm?
St. Louis 3, Mo. George H. Carpe

I think the answer to your question is found in confusion between "peaking speed" and "rpm at top speed" which are two entirely different things.

In other words, the Olds develops its peak bhp at a peaking speed of 3600 rpm. Above or below that rpm, the bhp is less than the "peak" rating. At 94 mph, representing the approximately top speed, the engine is turning over at close to 3850 rpm. At 3850 the engine has gone slightly past its power peak, but a reduction in exhaust back pressure adds, let us say, 10 bhp at not only 3600, but also 3850 and even 4000 rpm. With 10 more bhp available, we have a potential gain of 2 mph in top speed, so to go 96 mph, the engine has to turn 3930 rpm. Since even at 3930 rpm the lower back pressure gives more horsepower, the engine is able to propel the car that much faster, both in terms of car speed in mph and engine speed in rpm.

Careful study of the curves on Page 6 of ROAD and TRACK for January 1950 or page 7 April 1950 issue will make this explanation clearer—I believe.—Tech. Ed.

CLUB ACTIVITIES

SPORTS CAR CLUB OF AMERICA

Excitement is mounting for the Elkhart Lake Road Race, Elkhart Lake, Wisconsin. Members are preparing to join in the rally which will lead from all points of America to the races (Aug. 25th-26th). Many Western cars are being sent to compete for the first time against their Eastern counterparts. Barlow's Simca is one of the big favorites, having added larger carburetors, etc. Mike Graham will drive a Cad-Allard. Edgar's famous "88" will probably be in the running and also his new 4100 cc Ferrari and the new Siata sports if they arrive from Europe soon enough. Phil Hill will be driving a Silverstone Jaguar which is half way, (or a little more than half) between an XK-120 and an XK-120C. Two of these cars are arriving . . . John Fitch will be driver of the other. Plans are still under way for the Reno Road Race as announced last month and this is under the guidance of the San Francisco Region S.C.C.A. Nevada seems to be coming into her own . . . there is a strong rumor that Las Vegas will be host to competition cars in the early fall. The response to sports cars is truly amazing. Letters come in daily by the dozen from people who want to joi nup and get in on the fun. They have a family and a sedan but dream of a sports car. Wives are advised to encourage the head of the family in his dreaming. The initial cost might seem high as you contemplate the loss of your fall wardrobe, but a sports car can keep hubby out of an awful lot of mischief.

M.G. CAR CLUB

Bridgehampton is old stuff now, but the club deserves a lot of credit for pulling off a very smooth event. M.G.C.C. was rumored to have had a highly successful Montauk Trials, however no official news was received across this desk. The club has an interesting calendar lined up. As we go to press the Devil's Delight Rally is being held (July 29), while a race, of which no details are known is scheduled for August 11. August 25th is set for the Westhampton Steak Fry and Sept. 29th a Reliability run. The Deerfield Hill Climb and the Suffolk County "150" both fall (or rise) in October . . . the 13th and 28th respectively) . . . while the M.G.C.C. Annual meeting will be held Nov. 17. With double the number of M.G.s being sold each quarter over the previous three months, this club should end up as powerful as Tammany. Congratulations to the club for its well set-up bulletin. Sure makes life simple for the C.A. editor.

AUTO MANIACS, INC.

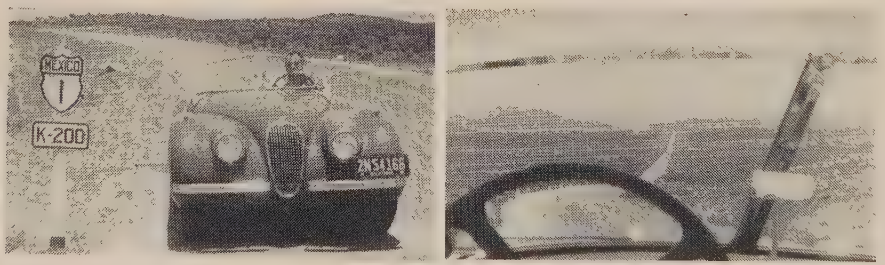
Thru their excellent monthly publication A.M. is plugging away at the old stand, which of course is not so old after all, and their main theme is events for family cars. One of these will be a national economy run held in conjunction with their national convention (at the Barlum Hotel in Detroit, Sept. 15).

FOUR CYLINDER CLUB OF AMERICA

July Rally was the biggest yet. And it occurs to the editor that this is the same thing we've been pointing out each month. But it's the truth. The club is growing fast with new branches forming thruout the country. It's hard to believe so many people love the old (and new) four bangers. According to Detroit the choice of the American public is a V-8 for the family car, but the turnout at the last F.C.C.A. meeting belies this claim. The meeting went on and on into the night but nobody went home early. Over one hundred people were present and we hear that the newly formed Santa Barbara Club had a good turnout too. At the Glendale (charter) meeting pictures were shown of the Isle of Man T.T. much to everyone's delight and plans were made and discussed for Dr. John Orlando's July rally which took place July 22. Orlando being a stress engineer at one of the local fly-fly plants, went all out to confuse the members in the timed run. The winner was 14 minutes off and six cars didn't finish at all. In spite of the elaborate slide rule tactics necessary to even finish, and the high rate of speed necessary on one or two legs, everyone congratulated John on a good run. And **Road and Track** congratulates President John Foster on the new F.C.C.A. newspaper . . . cartoons and all! Plans for next month are an economy run to be managed and auspiced by a major oil company. Novelty of the run will be the fact that drivers will exchange navigators so that there will be no clutch slipping or down-hill coasting. Gas tanks will be sealed and everything will be on the up-and-up. George Montrose will M.C. the whole deal. You've heard about the Austin competition car the F.C.C.A. is building up . . . well, here's the latest. The Austin company engineers were asked by Alan ('round the world) Hess to cooperate in every way. As a result, reams of figures and charts and pages of advice were sent from England telling how to get speed and performance. The membership has pulled the stock body off the wrecked car and has sold most of it to help finance the work in progress. The engine has been removed and washed . . . yes **washed!** . . . by the members and their wives. Also the chassis is undergoing stress analysis by John Orlando in preparation for lightening. Note to those who have been disappointed about badges. The original order sold out completely, but new ones are on order, and will arrive in two or three days.

HENRY J CLUB

Alright you American car fans . . . a new club is in the foramtion stage . . . for HENRY Js. And don't laugh, because you haven't seen the letters that have been coming in asking for a rallying point for this good handling, good performing American car. As you know the "Kaiser Henry" (as it is known in Europe) comes in two stages . . . four cylinder and six. Both models are eligible. Some of the eager beaver correspondents want a road race for J's and others want a milder, rally and trials type of organization. One writer asks merely to be put in touch with Henry J owners so that he can talk about his car . . . seems he's sick of other car owners who refuse to believe his performance figures. Anyway, the club is forming and for the present activity will be restricted to an August Rally. The plans are secret, but those who are interested may contact Bill Brehaut (Henry J owner) Box 777, Glendale, Calif., who will handle corresopndence until the first election of officers. August rally will be held near Glendale, California, over a difficult course. Bill will give you details in response to your letters. The 26th of August is the tentative date and lunch will be served in the form of a picnic which **you** will bring. There will be no membership fee.



MEXICAN RACE DETAILS

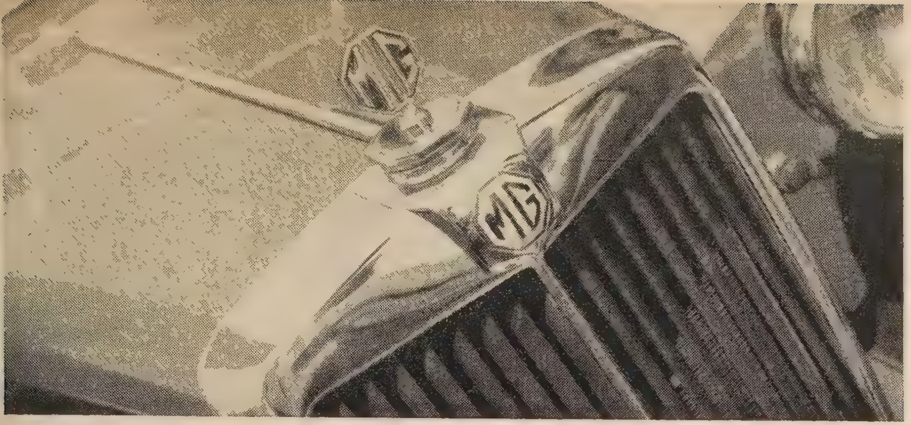
Shown herewith are four photos of the course of the Little Mexican Road Race to be held November 11, from Ensenada to Arroyo Seco and back. High average speeds are expected, altho winding mountainous roads make up a portion of the route. Long straights will permit speeds up to 120 mph. Entry blanks for this race may be obtained from the California Sports Car Club, Box 11442, Briggs Station, Los Angeles, Calif.

CLASSIC CAR CLUB OF AMERICA

They say when Greek meets Greek . . . they start a restaurant, and when Briton meets Briton . . . they start a club. From past experience the latter is certainly true, for the British Isles are literally speckled with clubs of every kind and description. However, the Yanks, once rabid, fightin', scratchin' individualists, seem to be undergoing a change. Its getting to be a case of any old excuse to form a group to admire some particular brand of style of automobile . . . and a good thing too, because these people who are starting these fast growing groups are certainly having the time of their lives. We've reported the growth of The Four Cylinder Club, Sports Car Club, Rolls Royce Owners Club, and the newly formed Hank J outfit, to name a scant few. Now comes, and its about time, a group of people who love the models built between 1925 and 1941. Edward A. Moran of **International Auto Journal** writes that the first meet is to be held in September in Westchester County, New York and that the dues are nominal. You can reach him at 3629 Oxford Ave., Riverdale, New York, and don't worry about restrictions, your car is probably eligible. As long as it was made between '25 and '41, is not dilapidated, and is as near stock as possible, you can join in the fun.

CALIFORNIA SPORTS CAR CLUB

Problems arise when you grow faster than you expect to. C.S.C.C. has got to the point when it can (as announced last month) sponsor, organize, and run off four road races in a space of four weeks. The reason they planned them this close together is so that the Easterners will find it worth while to make the trip West. To refresh your memory, there is the Calalina 'Round the Houses, The Reno Road Race (in conjunction with S.F. region S.C.C.A.), The Little Mexican Road Race, and Palm Springs Road Race. Problem . . . on account of transportation from the mainland to Catalina, only about 3000 spectators can be accommodated on the Island. And there's nothing the club can do about it. All **Road and Track** can do is advise you rent a pair of waterwings early, because the existing boat and plane reservations are bound to be snapped up, to a lot of people's disappointment. And for those who plan to swim over (27 miles) we recommend Mothersill's (adv.) The Club's Victory Dinner (celebrating Carroll Speedway's Foreign Car Races) was served at the Beverly Hills Gourmet Restaurant. After the cups and medals were distributed to the blushing speed demons, an exceptionally fine movie of the recent Palm Springs Road Race was reviewed. An interesting sidelight on Carrell . . . Quite a few of the cycle riders were present (and listen, sports car lovers . . . you've gotta pronounce it "sickle"). Seems that the radio publicity blurbs announced to all and sundry that motorcycles would run at Carrell. The leather jacket set were naturally disappointed when they paid their admission and then found themselves committed irrevocably to an evening of sports cars. Comments were acid at first, but as the evening grew on, the remarks heard in the stands indicated a change of heart. Nobody could scoff at the way Sam Hanks tooled the Muntz around in the match race against Louis Van Dyke's Jaguar, and the two wheeled gang manifested a lot of respect for Barlow's Simca and Seifried's full-race Ford Sports. Not content with an already bountiful schedule, C.S.C.C. is considering a Las Vegas Road Race, with George Cary sparking the whole affair. The course over which the race will be run on Dec. 9, will be 6.8 miles long. The contest will be routed right in front of all the big glamour hotels . . . Thunder-bird, Last Frontier, Flamingo, etc. I can see it all now . . . basking in the swimming pool while the Cad-Allards roar by . . . sipping grape juice as Phil Hill laps the Silverstone Jag at 100 mph.



NEW PRODUCTS

MG TEMPERATURE GAUGE

What Mr. Cook (2043 Montrose Avenue, Montrose, Calif.) calls his Radi-Meter was installed on one of the Road and Track MGs for an official test, and as far as this writer was able to determine, it was a success. At one point, paper was placed over the radiator in order to raise the temperature to about 200° F. on the dashboard thermometer (which was not standard equipment). The Radi-Meter, while not calibrated, has two colors painted next to the glass tube containing mercury. The lower color is green and above 200° F. is red. The mercury-filled tubes are checked for boiling point at the factory to assure proper calibration. Our Radi-Meter checked out at 200°, slightly below the red mark.

This type of heat indicating device was highly popular among sporty drivers a few years back and it seems to suit admirably the MG psysiognomy. However, the new Radi-Meter has one definite advantage over the old-time models. Service station attendants, in their zeal, were wont to twist off the comparatively fragile top assembly of the previous gauges.

This reviewer had but one objection to register against Oliver Cook's Radi-Meter. It is quite handsome and one is tempted to watch the fluctuations which take place out there on the radiator shell. The up and down goings of the red fluid so fascinated this particular traffic dodger that minor catalepsia nearly set in. However, this should prove no problem at all. A little will power applied during the break-in hours should find the purchaser of the Radi-Meter ($14.63) quite familiar with his new acquisition, whereupon he will tend to his driving.

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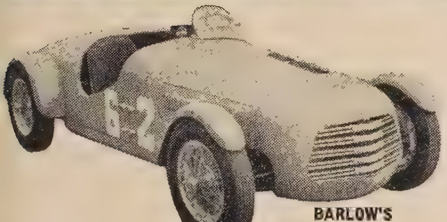

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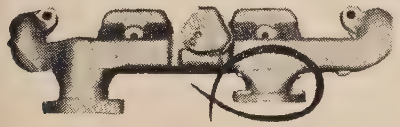

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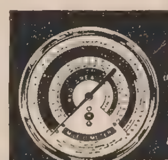

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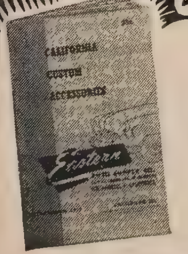

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LE MANS

(Continued from Salon)

Moss (Jaguar) and Gonzales (Talbot) during the heavy fight between themselves ran away from the leading group but a little later the young and magnificent English driver succeeded to lead Gonzales also, breaking over and over the lap record. Since this, everyone started thinking that the Jaguars were assured of the victory. This opinion became even stronger when at the fourth hour they saw the Jaguars leading 1-2-3, with Moss setting the new lap record of 104.38 mph even under the rain which was now falling.

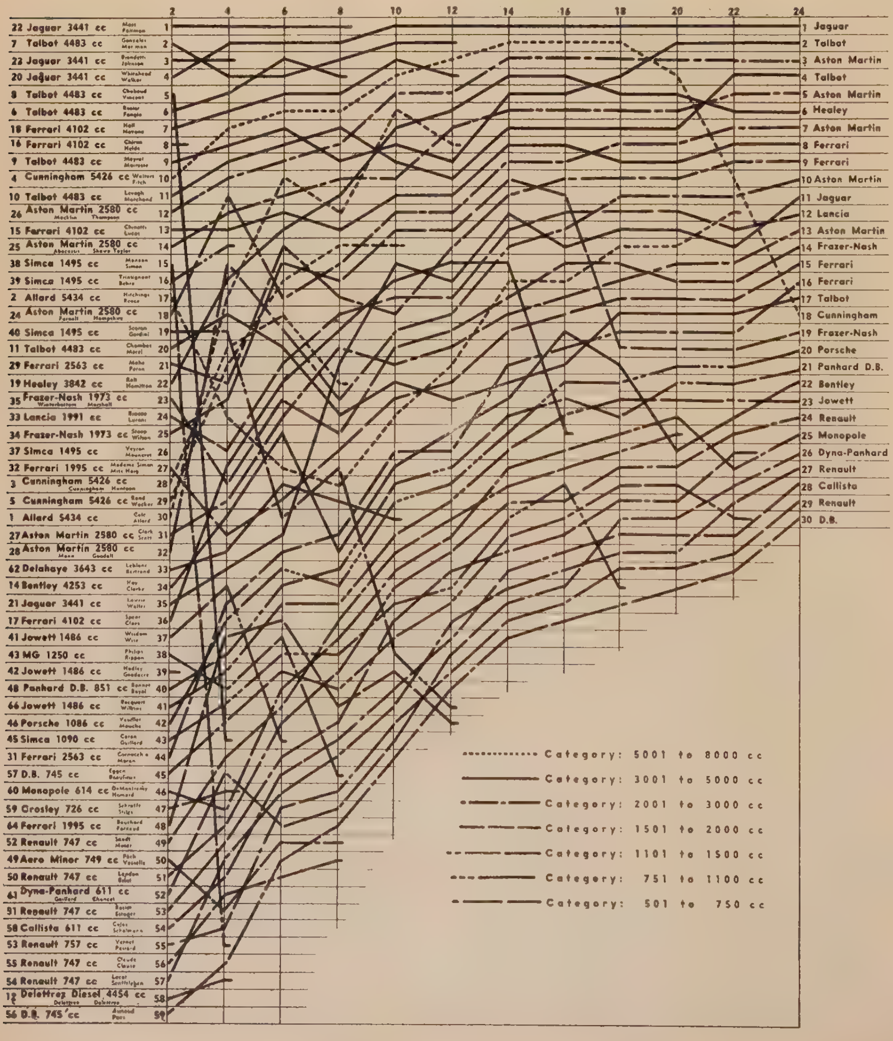
One of the most preferred drivers was at this time a victim of the strict Le Mans rules: Chiron, who was disqualified for an irregular pit-stop. Gonzales finally abandoned the field at the twelfth hour for engine head trouble, while one of the favorite couples—Fangio-Rosier—were forced out with an unhappiness of the oil line.

Meanwhile Cunningham #4 was most interesting. At the 7th place to start, this car, proceeding with high regularity, entered 2nd place at the 13th hour, to hold it with great aplomb until the 20th hour, when he was forced to slow down with one valve trouble. This was unfortunate and significant, because the speed of the Cunningham to this point was of a higher average than the winning Talbot in 1950.

During the night of great hardships, the Jaguars of Moss and Biondetti disappeared unexpectedly. Cunninghams #3 and #5 (Cunningham-Huntoon, Rand-Wacker) went out of the road and retired. The speedy Simcas abandoned the race, probably because their engines were too much shoved. As you see, the race was becoming heavier each hour, either because of the speed of the leading group, or because of the rain, now coming down interruptedly.

It was beautiful to watch the crowded balconies during the night and the rain . . . the passage by the pits, the signal lights to which the drivers answered with the horn, the fuel makings, the talking of the drivers were very, very interesting. My friends in the pit were beside the crew of Madame Simon-Miss Haig (Ferrari). At one moment I almost begged Miss Simon to pardon my friend Bracco (Lancia) who seemed about to pass her Ferrari. Such things only happen in the Le Mans night.

The unique Lancia is one of the most interesting finishers, being the same car which placed at the Mille Miglia 1951 where only Villoresi's 4100 cc Ferrari went faster. It is easy to imagine how hard was the race for this 1991 cc car against the very special Frazer Nashes and the 2000 cc Ferrari, remembering that the Lancia is not in reality a sports car at all . . . on the contrary a Gran Turismo, powered only by 83 horsepower at 5000 rpm and with a top speed of 105 mph. With 19 mph less than its main adversaries, the Lancia had one chance: to run always at high speed with few pit stops, which could indeed be done because the car will travel 70-75 mph only using 3¾ gallons/hour of fuel. It ran the twenty-four hours without a tire change and consumed one quart of oil. As the race finished the well-known Faroux, French designer and director of Le Mans, could not believe his eyes when he looked at the engine. True, it was dry and clean like a part made ready for the show window. It will be enough to say, that without touching the engine we left for Italy immediately after the race and drove for several hours at 100 and 105 mph with excellent engine performance. The result of the Lancia 24-hour performance might have been much better had not Bracco been caught during the night with a very muscular cramp in his right leg, leaving him only the use of his left. Even with very excellent acceleration and road holding, it was on the corners where the Lancia gained many precious seconds, and in the rain went even better!



The completely new Jaguar, which was winner, has this also to be interesting. Biondetti, when passing from Ferrari to Jaguar two years ago, insisted on the modifications which exist today in the XK-120C . . . 3441 cc, tubular chassis, new suspension, and Rudge type wire wheels. The Jaguar factory decided to modify to Biondetti's specifications and were amazed at the results, the car being faster than the Ferrari 4100 and the Talbot 4500. I understand that the Jaguar makes over 150 mph.

At the first light of day, it was almost certain that the Jaguar of Walker and Whitehead would be the winner, with the Talbot of Meyorat and Mairesse 2nd . . . these two being always in the first group. And that *is* the way the race ended.

Deserving every admiration was the sensational run made by the Aston-Martins: winners 1-2-3 in the 3000 cc class; 3rd, 5th, 7th, 10th, and 13th over all. Five started, five finished. Good was their regularity of running the long 24 hours, their excellent road holding (contrary to what has been said in America), and finally, the good impression they made to everyone. I believe that car will hold the automobile market for a long time, because it is a medium-sized sports car which has proved highly dangerous to the larger categories.

The general impression when the Cunningham first appeared may be closed in just one word . . . imposing. Elegant is the rear suspension with the differential fixed on the chassis and the brakes at both sides of the differential itself. This solution has the advantage of reducing the unsuspended weight and giving better braking and better brake cooling which is aided by the two scoops leading in from the side of the rear fenders. Great care has been taken with this car. An electrical system from the brake drums notifies the driver (via an instrument on the panel) of the brake temperature. Moreover, the designers cared very much for the driver's seat, building and placing it for the most driving comfort, also installing a radio-phone to keep the driver in direct touch with the pit.

Considering the Cunningham was making its debut at Le Mans, I must say it was very good. Seen thru European eyes it is a heavy and large sized car, so I think that its engineers will reduce its weight and encumbrance after the precious experience gained here. A large and heavy car may compete successfully at Le Mans if it has the reserve power to "stretch out" on the straights, but in the other European races, it is a different story. At the Mille Miglia, Nurburg Ring, G.P. of Freiburg, etc., driving manageability is absolutely indispensable. And everyone knows that easy driving comes from less encumbrance and naturally from lightness. I take the liberty of describing these modest and elementary remarks, not to criticize, but to give the European impression of the fine American cars at Le Mans.

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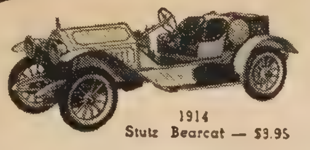

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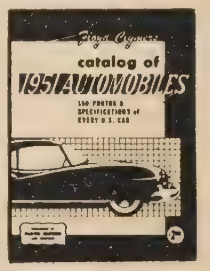

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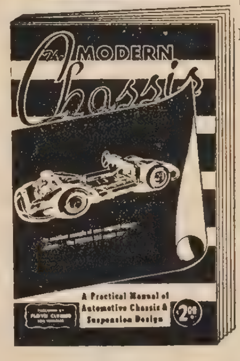

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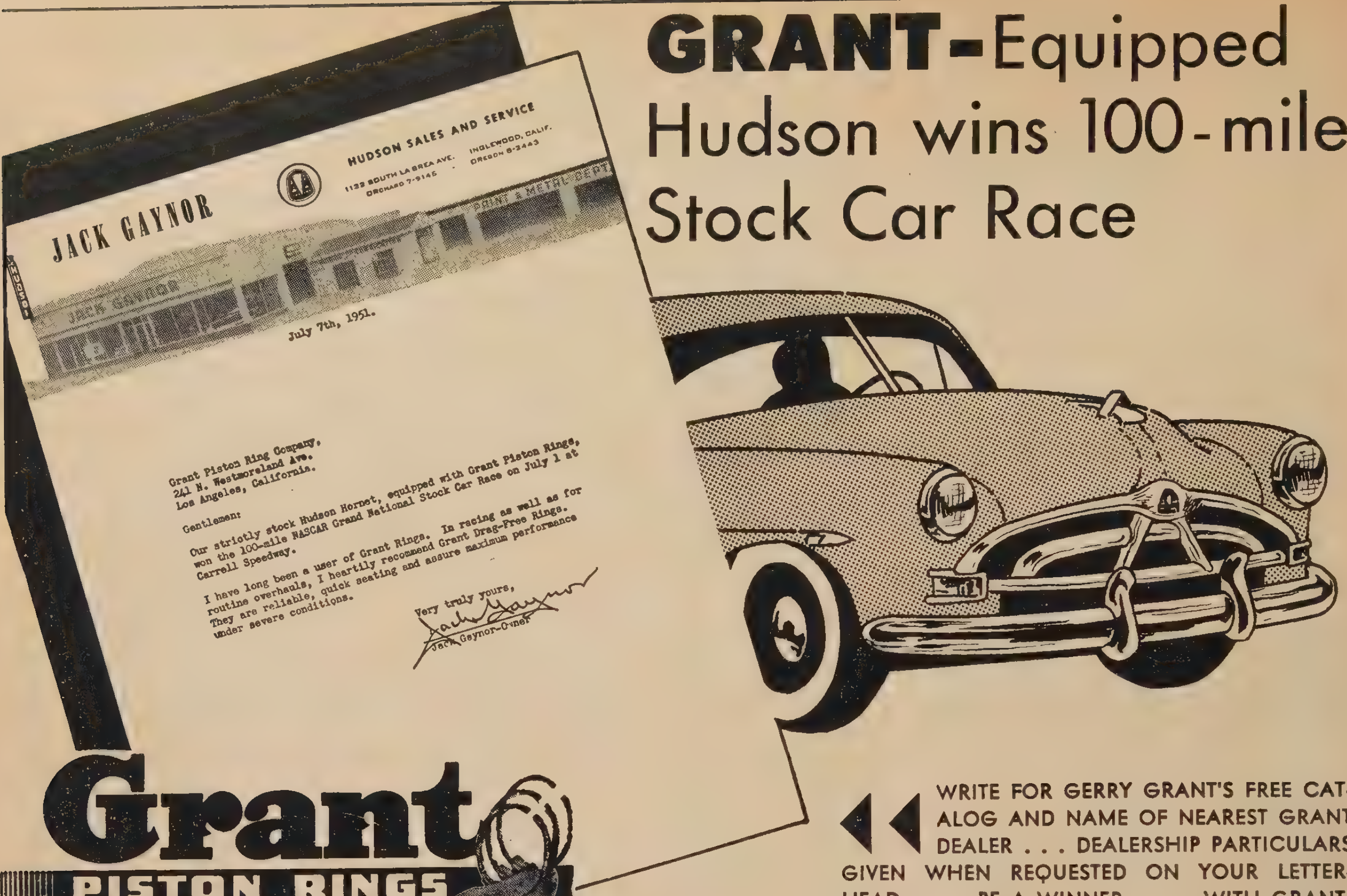

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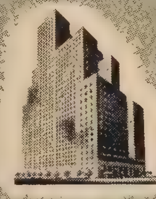

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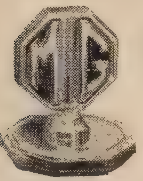

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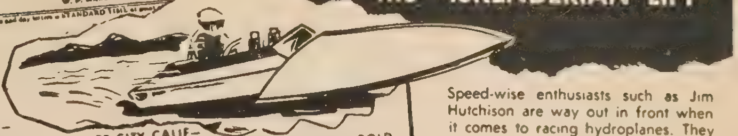

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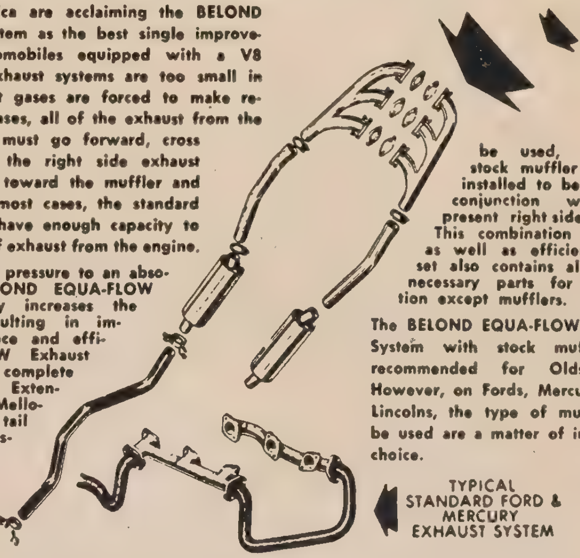

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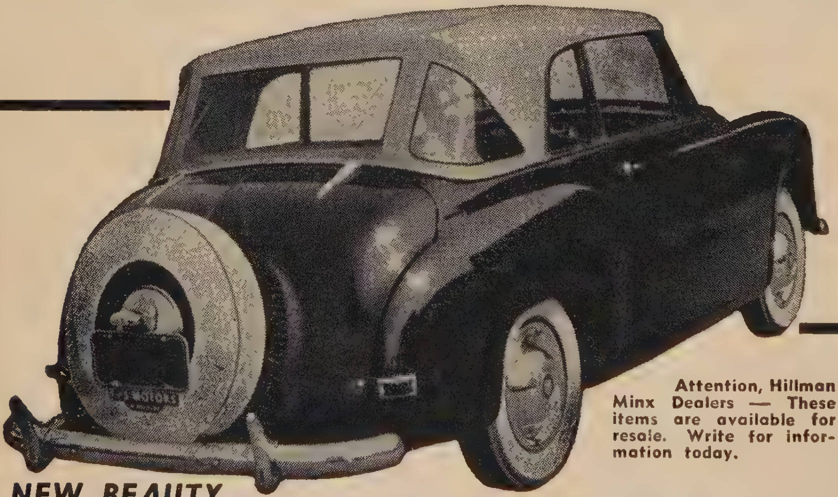

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LATE NEWS

WORLD'S CHAMPIONSHIP

As of July 30, the point standings for the title of World's Champion Driver are as follows:

1. Fangio	Argentina	28 points
2. Ascari	Italy	17 points
3. Villoresi	Italy	15 points
Farina	Italy	15 points
Gonzales	Argentina	15 points

JAGUAR XK-120 C AVAILABILITY

The sensational Jaguar XK-120 C, which won the 1951 Le Mans race, is to be put into *limited assembly.* A few will be sold to *selected* buyers at a price rumored to be near $6000. It is believed that only those who are proved successful drivers in competition will be allowed to purchase the initial cars coming to the U. S. This model, with a 160 mph maximum speed and unsurpassed handling characteristics, will do much to add to Jaguar's prestige in American road competition.

FERRARI WINS GERMAN G.P.

Alberto Ascari, on Ferrari 4500 cc, won the German G.P. at the Nurburgring in a smashing victory for the Ferrari team over Alfa. Fangio, on Alfa, was second, but then came Gonzales (Ferrari), 4th was Villoresi (Ferrari), 5th Taruffi (Ferrari) and 6th Fischer (Ferrari 2500). A complete story of this classic race will be reported by Corrado Millanta in the October issue of *Road and Track.*

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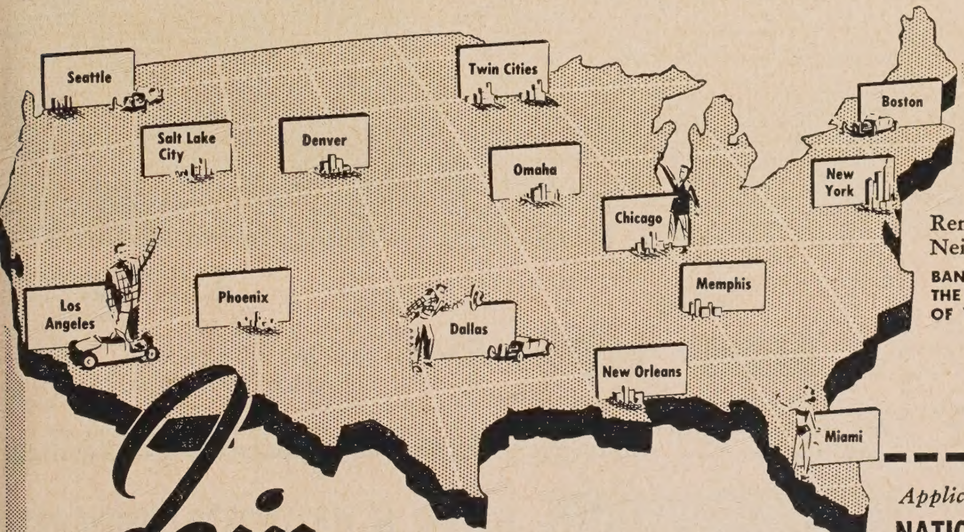

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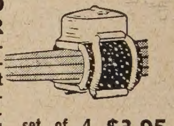

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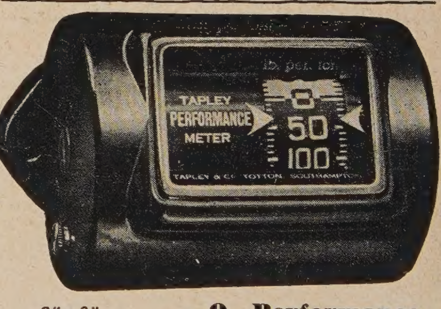

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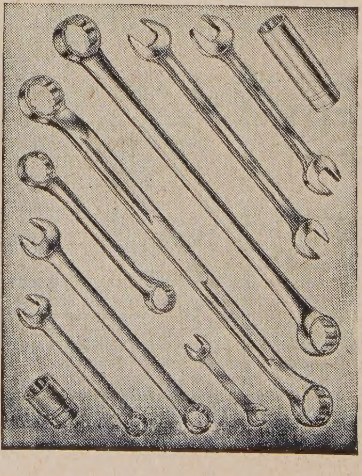

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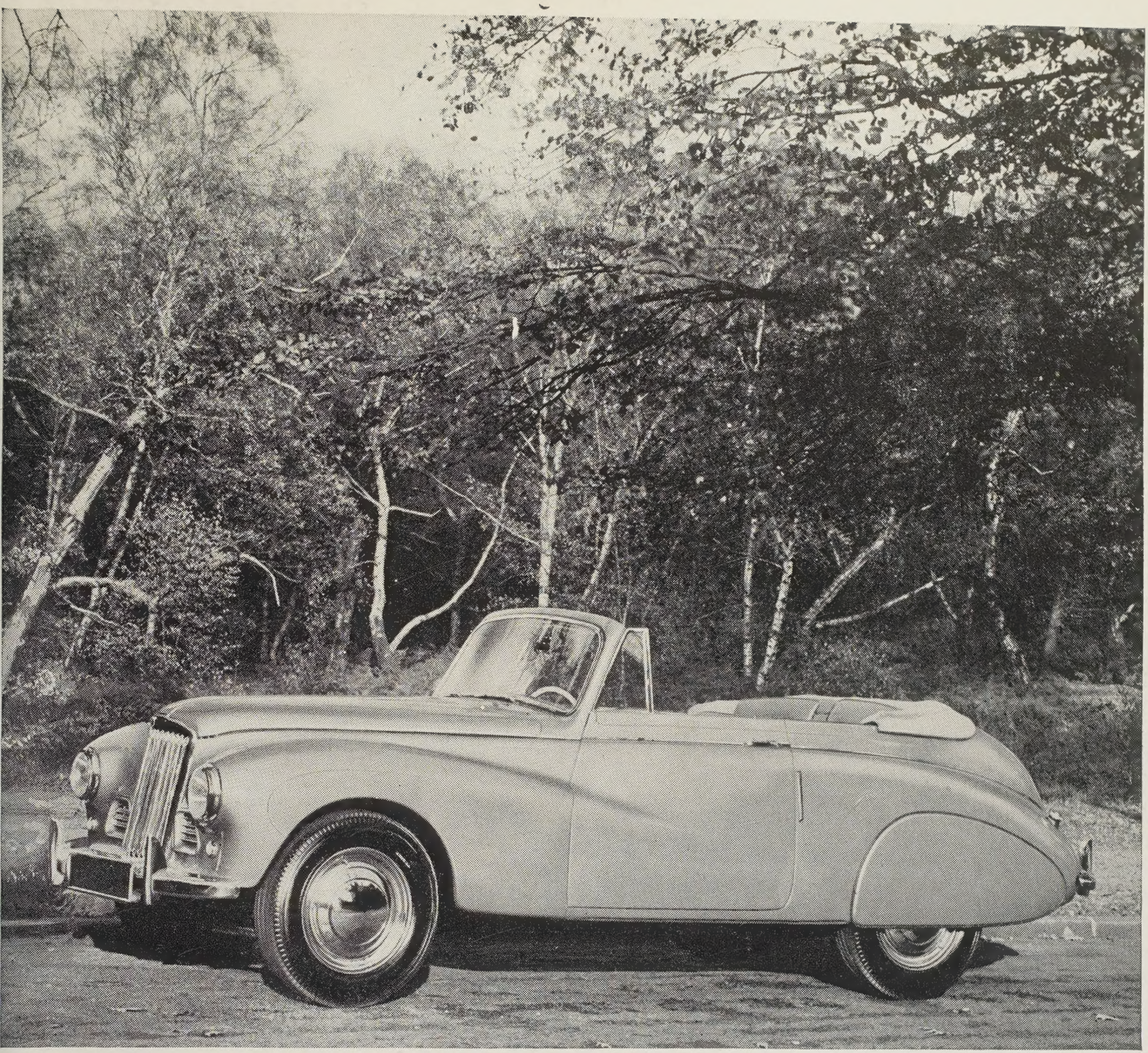

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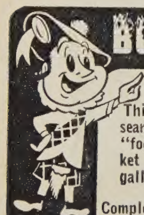

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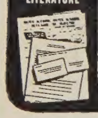

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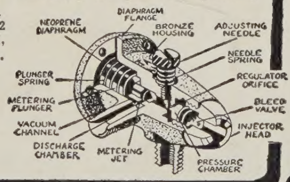

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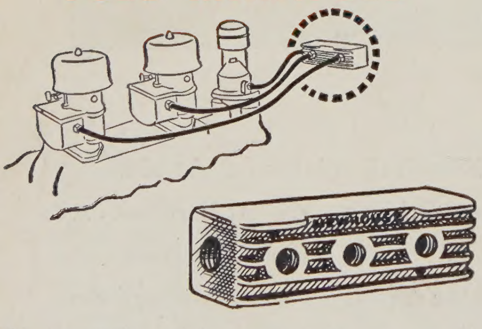

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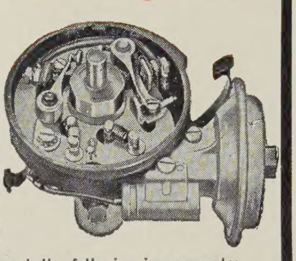

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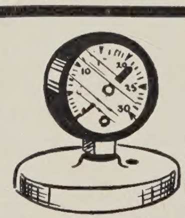

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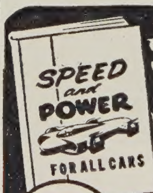

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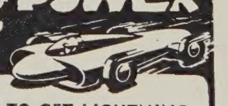

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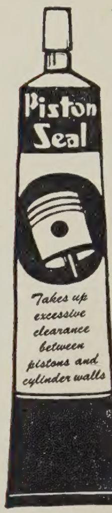
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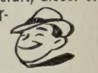

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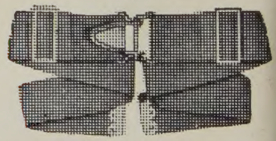

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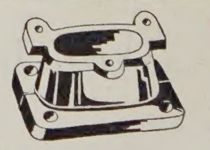

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